NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

A MODEL PROCEDURE INTEGRATING
TOTAL QUALITY MANAGEMENT
INTO THE SOURCE SELECTION PROCESS

by

Richard Lincoln Wilson

JUNE 1991

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A secondary objective of this thesis was to construct the model procedure in a manner which allowed maximum flexibility to contracting activities to tailor any aspects of the procedure to fit local requirements, regulations and standard operating procedures.

The final objective of this thesis was to obtain feedback from knowledgeable and experienced Government contracting or policy personnel, and to modify or refine the procedure into a more feasible, useful model.

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A Model Procedure Integrating Total Quality Management Into the Source Selection Process

by

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requirements for the degree of

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ABSTRACT

This thesis was an attempt to construct and refine a model procedure for DoD contracting activities to utilize when integrating quality factors such as Total Quality Management into the source selection process for major acquisitions. The primary objective of this thesis was to modify application guidelines for the Malcolm Baldridge Quality Award into source selection criteria, and then devise a procedure to temper the results of the basic proposal evaluation with a degree of risk determined from a Performance Risk Assessment of the offeror.

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TABLE OF CONTENTS

I. INTRODUCTION 1
A. AREA OF RESEARCH 1
B. RESEARCH QUESTIONS 1
1. Primary Research Question 1
2. Subsidiary Research Questions 2
C. OBJECTIVE 2
D. SCOPE OF THE THESIS 3
E. METHODOLOGY 4
F. ORGANIZATION 4
II. BACKGROUND 6
A. INTRODUCTION 6
B. WHAT IS QUALITY? 6
C. TOTAL QUALITY MANAGEMENT (TQM) 9
D. THE MALCOLM BALDRIDGE NATIONAL QUALITY AWARD 12
E. THE CURRENT ATTITUDE TOWARDS QUALITY AND TQM IN THE NAVY 14
F. FEDERAL ACQUISITION REGULATION 17
G. THE PRIMARY FORCES INFLUENCING QUALITY PERCEPTIONS AND TQM UTILIZATION IN DoD SOURCE SELECTION SINCE CICA 17
H. THE ARMY'S USE OF TQM AND STATISTICAL PROCESS CONTROL IN SOURCE SELECTION 21
I. A DoD INITIATIVE TO INTEGRATE TQM INTO SOURCE SELECTION 25
J. SUMMARY 26
III. A SOURCE SELECTION PROCEDURES MODEL 28
A. INTRODUCTION 28
B. OVERVIEW OF THE DRAFT GUIDE TO INTEGRATING TQM INTO DoD SOURCE SELECTION PROCEDURES 28

C. SUGGESTIONS FOR FINALIZATION OF THE DRAFT GUIDE 31
D. RECOMMENDATIONS 32
E. SUMMARY 38
IV. PERFORMANCE RISK ASSESSMENT 40
A. INTRODUCTION 40
B. PROPOSAL VERSUS PERFORMANCE RISK 41
C. THE IMPORTANCE OF ASSESSING PAST PERFORMANCE IN A PRA 41
D. BASIC ELEMENTS AND LEGAL ASPECTS OF THE PRA 43
1. Past Performance vs Preaward Survey . . 43
2. Key Features of a PRA 44
3. GAO 45
E. CONDUCT OF A PERFORMANCE RISK ASSESSMENT (PRA) 46
F. PRIMARY SOURCES OF PERFORMANCE DATA FOR THE PRA 51
G. SECONDARY SOURCES OF PERFORMANCE DATA FOR THE PRA 56
H. SUMMARY 57
V. FEEDBACK AND ANALYSIS 58
A. INTRODUCTION 58
B. METHODOLOGY 58
C. FEEDBACK AND ANALYSIS 59
1. Comments in Favor of the General Concept 60
2. Comments Not in Favor of the General Concept 60
3. Comments in Favor of Specific Aspects of the Model 63
4. Comments Not in Favor of Specific Aspects of the Model 64
D. MODIFICATIONS TO MODEL BASED ON FEEDBACK . . 65
E. SUMMARY 68
VI. CONCLUSIONS AND RECOMMENDATIONS 69
A. INTRODUCTION 69

B. CONCLUSIONS 69
C. RECOMMENDATIONS 71
D. ANSWERS TO THE RESEARCH QUESTIONS 73
E. AREAS FOR FURTHER RESEARCH 79
APPENDIX A MALCOLM BALDRIDGE NATIONAL QUALITY AWARD EXAMINATION GUIDELINES- 1990 . . . 81
APPENDIX B EXCERPT FROM THE DoD/JOINT SERVICE/AGENCY PAT: (DRAFT) GUIDE TO INTEGRATING TOTAL QUALITY MANAGEMENT INTO SOURCE SELECTION 83
APPENDIX C EVALUATION FORM 88
APPENDIX D EVALUATION FORM (EXAMPLE) 103
APPENDIX E CONSOLIDATED TALLY SHEET (EXAMPLE) 105
LIST OF REFERENCES 108
INITIAL DISTRIBUTION LIST 111

I. INTRODUCTION

A. AREA OF RESEARCH

The researcher will identify and examine the elements of quality in the contractor performance of Department of Defense (DoD) contracts. Once identified, the most salient and quantifiable quality factors will be incorporated into a model Source Selection Evaluation Procedure for use by Procurement Contracting Officers (PCO's) and other source selection personnel involved in formal source selection. The researcher will then examine various sources of contractor present and past performance and a recommended Performance Risk Assessment (PRA) procedure from the Army, and incorporate it into a procedure for Source Selection Evaluation Boards (SSEB's) or Source Selection Authorities (SSA's) to verify and validate offered contractor quality information with actual contractor performance quality history.

B. RESEARCH QUESTIONS

1. Primary Research Question

What would be a useful and practical Source Selection Evaluation Procedure model for PCO's and SSEB's which would incorporate significant and quantifiable quality factors with a procedure to verify and validate offered contractor quality information with contractor quality history?

2. Subsidiary Research Questions

1. How are Packard Commission findings and recommendations and the DOD-wide TQM implementation efforts spawning attempts to incorporate quality considerations into DoD source selection evaluation methods?

2. How did CICA impact DoD use of Best Value source selection procedures?

3. What are the current attitudes of Navy PCO's, PM's and commercial procurement personnel towards quality factors in source selection procedures?

4. Which quality factors are considered as the most critical and quantifiable to Navy PCO's today?

5. What are the various systems throughout DOD which collect and disseminate historical contractor quality history data, and can be utilized in the conduct of a Performance Risk Assessment (PRA)?

C. OBJECTIVE

The objective of this research is to propose a source selection method which addresses one of the recommendations of the Packard Commission as well as to possibly aid in the implementation of Total Quality Management in DoD by constructing a model Source Selection Evaluation Procedure which can add quality factors and TQM to existing technical and cost considerations. The information which the model quality factors request in solicitations will then be

validated and verified by the SSEB against contractor quality history as reflected in centralized past performance data collection bases and other sources of past performance quality. Therefore, if several contractors are relatively equal or close in technical abilities and cost, the quality factor could be a valid tie breaker, depending on how this model is used or how much weight is placed on quality considerations.

D. SCOPE OF THE THESIS

This study will be specifically limited to procurement actions of such magnitude or importance as to require formal source selection procedures, with an emphasis on the acquisition of major weapons systems on a greatest or best value basis. The background research will concentrate on the period 1984-1991, the period just after the implementation of CICA to the present. The quality factors, especially TQM, will be drawn from the application guidelines for the Malcolm Baldridge National Quality Award. The most current and comprehensive service/agency initiatives for collecting and disseminating contractor quality information will also be examined as part of the Performance Risk Analysis portion of the model.

E. METHODOLOGY

This study will consist of three phases. The first phase will combine extensive literature review and research with personal interviews from appropriate DOD and private sector personnel. This phase will be finished upon completion of a model Source Selection Evaluation Procedure, and procedures to verify the offered contractor information.

The second phase will consist of the distribution of this model and procedures to selected DoD and private sector personnel for critical review and comment. The selection process will not be random, stratified or in any way scientifically structured, but will be centered around selection of knowledgeable, experienced individuals who can objectively review and analyze the model for possible improvements or refinements.

The third phase will consist of adjusting or modifying the model and procedures with valid inputs from the selected experts. The resulting product should be more flexible and adaptable for possible use by PCO's and SSEB's in DoD contracting activities.

F. ORGANIZATION

The remainder of the thesis is organized into the following chapters:

1. Chapter II will provide background information on and a description of quality, on what Total

Quality Management is, what the current attitude towards quality is in the Navy as a source selection evaluation factor in procurements, how the FAR addresses quality in source selection, and what are the primary forces influencing quality perceptions and utilization in DOD since CICA. A description of the Army's use of TQM and other continuous process improvement processes as evaluation and performance risk assessment factors in an actual major procurement will also be presented.

2. Chapter III will be a model Source Selection Evaluation Procedure integrating TQM and past performance into a feasible method for DoD contracting activities.

3. Chapter IV will examine performance risk, will address the legal aspects of utilizing past performance data in performance risk, will describe the Performance Risk Assessment procedure as it is generally conducted in DoD, and will list and describe some of the various sources of past performance data available to DoD procurement officials today.

4. Chapter V will synopsize any feedback received from reviews and critiques of the model plan, and will contain any revisions to the model based upon this feedback.

5. Chapter VI will provide conclusions based upon findings and recommendations regarding the feasibility of utilizing the model procedure and the future of quality factors in DoD source selection. Areas of study that warrant further research will also be identified.

II. BACKGROUND

A. INTRODUCTION

This chapter will provide background information on what quality is perceived to be, what Total Quality Management is, what the current Navy attitude is towards quality as a source selection evaluation factor in procurements, and how the Federal Acquisition Regulation addresses quality in source selections. A general overview of the primary forces influencing attitudes toward quality in DoD source selection procedures since CICA implementation, and of the Army's utilization of quality factors in an actual procurement will also be presented.

B. WHAT IS QUALITY?

Quality in products or services is not as easily quantifiable or describable as other characteristics such as dimensions, weight, performance parameters or cost/price. In essence, the relative elusiveness of a concrete definition for use in solicitations or of an accepted method to validate offeror quality claims against actual past performance has made quality a seldom used evaluation factor for DoD PCO's. Quality has been a heavily used factor in commercial/industry purchasing offices for many years, and there exists a

significant difference in perceptions of quality between the Government PCO's and private purchasing officials.

When searching for a commonly accepted definition of quality, the writings of four prominent authors in the field of quality management: Crosby, Juran, Deming and Garvin, stand out as being the most comprehensive and widely accepted.

P.B. Crosby defines quality as simply, "conformance to requirements" [Ref. 1: p. 14]. His main point regarding quality is that it provides cost effectiveness and value as a product characteristic because the costs of scrap, rework, service, warranty, inspections and tests which result from noncomformance to requirements or specifications far exceed the cost of efforts to design and produce products or services which "do not fail in the field" [Ref. 1: p. 15-16].

J.M. Juran's simple definition of quality is "fitness for use" [Ref. 2: p. 2-2]. The user or customer makes this fitness determination based upon features of the product/service the user recognizes as beneficial.

W. Edwards Deming is arguably the most widely known and respected author and practitioner in the field of quality management, in fact his name is synonymous with Total Quality Management (TQM). He is credited for successfully implementing the total quality approach and culture into Japanese manufacturing. He does not offer a firm working definition of quality, rather he describes the difficulty of defining quality [Ref. 3: p. 169]:

> The difficulty in defining quality is to translate future needs of the user into measurable characteristics, so that a product can be designed and turned out to give satisfaction at a price that the user will pay....The quality of any product or service has many scales. A product may get a high mark in the judgement of the consumer on one scale and a low mark on another.

In direct contrast to the letter and intent of the 1984 Competition in Contracting Act, Deming advocates limiting the number of suppliers to a chosen few for long term relationships because [Ref. 4 : p. 13]:

> We can no longer leave quality and price to the forces of competition - not in today's requirements for uniformity and reliability. Price has no meaning without a measure of quality being purchased. American industry and the U.S. Government are being rooked by the rules that award business to the lowest bidder.

D.A. Garvin has the most sophisticated view of quality, using five different approaches for providing a framework for defining quality: the transcendent, product-based, user-based, manufacturing-based and value-based approaches. He adds eight dimensions of quality to be considered by each approach: performance, features, reliability, conformance, durability, serviceability, aesthetics and perceived quality [Ref. 5: p. 101]. According to his hypothesis, the definition of quality is variable, depending on the definer's approach point of view and which critical dimensions of quality were applicable.

From the discussion above it is obvious that there is no single complete, all encompassing definition of quality which is universally recognized and accepted in industry or Government, there are just too many variables and viewpoints.

Perhaps the very best operational definition of quality in DoD today was offered by Dr. Robert E. Costello, the former Under Secretary of Defense for Acquisition, when he proposed a definition of quality which was accepted by both Government (The Defense Science Board and The Defense Manufacturing Board) and industry (The Manufacturing Advisory Committee) [Ref. 6: p. 14]:

> Quality is.....conformance to correctly defined requirements satisfying customer needs.

Dr. Costello expanded further on this definition of quality [Ref. 6: p. 15]:

> ....the composite of material attributes, including performance characteristics and features of a product or service to satisfy a given need. Translation: Is the product good, and will it do the job for which it is intended?

C. TOTAL QUALITY MANAGEMENT (TQM)

TQM is a management style consisting of a set of techniques and tools for continuously improving the degree of quality as described in Section B, in day-to-day operations at every organizational level, in every area of responsibility, and in every product or service produced. TQM combines fundamental management techniques and strategies, existing process improvement efforts and statistical evaluation tools into a dynamic, disciplined structure focused on continuously improving all processes [Ref. 7: p. 2]. TQM is based on the following elements [Ref. 8: p. 1]:

1. Development of a culture or environment committed to continuous process/product/service improvement.

2. An understanding of the needs of the customer, and keeping those needs foremost in the organization's priorities.

3. Increased involvement by all levels in the work force.

4. Establishment of a teamwork approach to solving problems, and the use of crossfunctional cooperation and dialogue.

5. An understanding that most problems are a function of process management, and not people problems.

6. Making decisions based on data, not subjective inferences.

7. Establishment of a commitment to quality that is pervasive throughout the organization, but starting with strong support from top management.

8. Stressing that small, constant improvements are just as important as large-scale innovations.

Within DoD, TQM implementation will focus on continuous process improvement of every facet of its operations, i.e. internal operations, weapon system requirements formulation, design, development, production planning, source selection, manufacturing, fielding and follow-on logistical support [Ref. 9: p. ii]. The intent is for TQM to evolve beyond being just another program or buzzword, and to literally change the quality culture of the DoD establishment, its contractors and their principle subcontractors. This shift of quality focus translates into preventing defects through quality being designed-in and built-in to the product or service instead of being "inspected-in" or through defect correction. It also

means that continuous process improvement will replace "acceptable levels" of defects, properly defined requirements will replace approval of waivers to conformance, and that the emphasis will change to quality, cost and schedule instead of only cost and schedule [Ref. 9: p. iii].

TQM is process oriented, and as such goes beyond the traditional DoD quality assurance system and "after the fact" product inspection. Some of the common tools used in the process of operating under TQM include: benchmarking, cause and effect diagrams, pareto charts, statistical process control, histograms, input/output analysis, scatter diagrams, concurrent engineering, control charts, work flow analysis, team building and time management [Ref. 9: p. 50]. When fully implemented, TQM in the DoD establishment and military industrial base will encompass the following principle areas [Ref. 9: p. iv]:

1. The quality of management. Effective leadership, both internally and at DoD contractor and principle subcontractor levels. TQM demands involved, participating and high quality management of all processes that add up to the acquisition process.

2. The quality of processes. Every functional element in the DoD and industry must continually search for process shortcomings and devise ways to gradually overcome them through a continuous improvement process.

3. The quality of the integrated hardware/software systems and services provided to our field users. With respect to product quality, TQM expands the definition from the product conformance focus to one which starts with the definition of correct

requirements, then the achievement of conformance to these requirements through continuous process improvement, not exclusively through inspection. The bottom line will be the achievement of total user satisfaction. It should be clear that total conformance to an incorrect requirement results in a perfectly incorrect product or service.

D. THE MALCOLM BALDRIDGE NATIONAL QUALITY AWARD

One set of guidelines or criteria which can be effectively used to evaluate an organization's commitment to and utilization of some form of TQM or quality assurance in their corporate charter or philosophy, and in their day-to-day management is the application and evaluation guidelines for the Malcolm Baldridge National Quality Award (MBNQA). These guidelines were jointly developed by a Government and industry coalition, and are widely accepted as being the most current and objective guidelines available today for evaluating corporate TQM implementation or other quality assurance efforts. An outline of the guidelines as of 1990 are contained in Appendix A.

The MBNQA is an annual award required since the passing of P.L. 100-107, The Malcolm Baldridge National Quality Improvement Act of 1987. The award process is managed by the U.S. Department of Commerce and the National Institute of Standards and Technology, and is administered by the Malcolm Baldridge National Quality Award Consortium, formed by the

American Society for Quality Control and the American Productivity and Quality Center [Ref. 10: p. 7].

This award recognizes any U.S. company which excels in quality management and quality achievement within three categories: manufacturing, service and small business. This award promotes and rewards [Ref. 10: p. 4]:

1. An awareness of quality as an increasingly important element in competitiveness.
2. An understanding of the requirements for quality excellence.
3. The sharing of information on successful quality strategies and on the benefits derived from implementation of these strategies.

These application guidelines are not only effective for use in gathering information for MBNQA evaluation procedures by the Board of Examiners, but they have been extremely useful to many companies, including McDonnell-Douglas, as a method for self-diagnosis of the company's commitment to quality and continuous process improvement [Ref. 11].

As a measure of how seriously Government and industry takes this award, over 180,000 applications were submitted for the 1990 award. The award has also received high level attention from the President of the United States to the presidents and CEO's of most firms in the U.S. today [Ref. 10: p. 1]:

> The improvement of quality in products and the improvement of quality in service - these are national priorities as never before.....All American firms benefit by having a

standard of excellence to match and perhaps, one day to surpass. There can be no higher standard of quality management than those provided by the winners of the Malcolm Baldridge National Quality Award.

- President George Bush

If you intend to become the world's best, it's essential to establish what that takes, document it, take action on it, and then measure your progress. The Malcolm Baldridge is a road map for us to achieve our vision of becoming the world's preeminent space systems company.

- Ken Francis, President
McDonnell-Douglas Space Systems Company

E. THE CURRENT ATTITUDE TOWARDS QUALITY AND TQM IN THE NAVY

Some of the key characteristics of DOD procurement activities in general and Navy procurement activities in particular are that the methods are structured in nature, centralized to some extent to provide consistency, and open to audit and review. The Navy purchasing environment is further impacted by many factors outside of the control of individual PCO's. These factors include: socioeconomic goals, influence of the dynamic federal budget process with its fluctuations, the distinction between price and cost, the difficulty in establishing specifications, the distinction between best, suitable and "goldplating," the preference for fixed price contracts, and the strong preference for competition. Within this environment, the PCO must take written requirements from the requiring office or activity, match them with available suppliers, and negotiate the most favorable terms for the purchase. Price is most often the dominant source selection evaluation factor in this procurement process, and may be

viewed as stifling PCO creativity and innovation, as Dr. Harry Page states [Ref. 4: p. 42]:

> It has become traditional practice in government to write purchase specifications in such a way that any potential supplier can produce the item, and award can be based upon lowest price.

With this environment in mind, what are the prevailing attitudes of the Navy acquisition community towards quality factors in the source selection process?

CDR Charles A. Perkins, SC, USN performed an extensive survey of and personal interviews with Navy PCO's, Navy Program Managers (PM's) and members of the National Association of Purchasing Management (NAPM) in 1988 as part of his dissertation research. The study itself consisted of using two similar questionnaires testing seven hypotheses [Ref. 4: p. 41]. The first questionnaire was directed to the 77 designated Navy Program Managers and was returned with a response rate of 88%. The second was sent to 517 Navy PCO's and 1,163 NAPM members with response rates of 45% and 37% respectively (statistically significant samples). Follow-up interviews were conducted when requested or when necessary to clarify expressed opinions.

Nonparametric and exploratory data analysis statistical tools were used to test the hypotheses. The following are supported hypotheses and conclusions drawn from the analysis of the collected data [Ref. 4: p. 47 - 51]:

SUPPORTED HYPOTHESES:

1. Competition is viewed as positively influencing the quality of products obtained unless the competition is dominated by price considerations.

2. Price competition is a more significant factor in Navy procurement than in commercial/industrial purchasing.

3. The effectiveness of the Navy procurement process in obtaining quality products is inadequate because of the overemphasis on price and the poor feedback of accurate and timely quality related information from the end-users back to the Navy PCO.

CONCLUSIONS:

4. The comparison of the attitudes and preferences of the sample populations of Navy PCO's and NAPM members showed a significant difference in the importance they place on quality factors in their purchase decisions, with heavier attention placed on it in the commercial/industrial sector.

5. Satisfaction of the minimum specifications drives the award in price-based decisions.

6. Consideration of other non-price related factors evokes a notion that the item is "goldplated," or that too much is being paid for an item.

7. Interviews with Navy contracting officials established that a method of source selection based upon prestated quality measures would be used if a feasible, generally accepted model were available.

8. Of CDR. Perkins' seven quality characteristics ranked by PCO's, PM's and NAPM's, performance and reliability were ranked number one and two in importance by all three groups. PCO's ranked the remaining factors in order of importance as maintainability, schedule, durability, past performance and warranty respectively. PM's ranked

them as durability, maintainability, past performance, schedule and warranty, and NAPM as durability, schedule, maintainability, past performance and warranty respectively.

F. FEDERAL ACQUISITION REGULATION

FAR subpart 15.605 addresses source selection evaluation factors, and not only encourages quality to be an evaluation factor in all negotiated contracts, but makes it and price the two required evaluation factors in every source selection [Ref. 12: p. 16,926]:

> (B) The evaluation factors that apply to an acquisition and the relative importance of those factors are within the broad discretion of agency acquisition officials.... Quality also shall be addressed in every source selection. In evaluation factors, quality may be expressed in terms of technical excellence, management capability, personnel qualifications, prior experience, personnel qualification, past performance and schedule compliance.
>
> (C) While the lowest price or lowest total cost to the Government is properly the deciding factor in many source selections, in certain acquisitions the Government may select the source whose proposal offers the greatest value to the Government in terms of performance and other factors.
>
> (D) In awarding a cost-reimbursement contract, the cost proposal should not be controlling, since advance estimates of cost may not be valid indicators of final actual costs. The primary consideration should be which offeror can perform the contract with results most advantageous to the Government, as determined by evaluation of proposals according to the established evaluation criteria.

G. THE PRIMARY FORCES INFLUENCING QUALITY PERCEPTIONS AND TQM UTILIZATION IN DoD SOURCE SELECTION SINCE CICA

Since the passage of CICA in 1984, there has been a widely held view that defense procurement overemphasizes the importance of cost/price in source selections. While CICA did not specifically forbid the use of quality as an evaluation factor in DOD procurements, the manner in which it was implemented by DOD, and subsequent Comptroller General decisions supporting CICA both contributed to this view.

While not openly criticizing the letter or intent of CICA, the President's Blue Ribbon Commission on Defense Management, more commonly known as the Packard Commission, identified three problems in 1986 with CICA's implementation in DoD [Ref. 4 p. 42]:

1. the interpretation that the government must buy from the lowest price bidder;
2. the notion that CICA precludes qualification criteria, consideration of technical expertise, or life cycle costs; and
3. the resulting focus on the number of competitions rather than the success the competition achieves in terms of reduced prices or better products.

The Packard Commission went on to make Recommendation F, that CICA's full potential could not be reached until [Ref. 13: p. 62]:

> Federal Law and DOD regulations should provide for substantially increased use of commercial-style competition, emphasizing quality and established performance as well as price. Commercial procurement competition simultaneously pursues several related objectives: attracting the best qualified suppliers, validating product performance and quality, and securing the best price. Procurement officers must be allowed and

> encouraged to.....give preference to suppliers that have demonstrated quality and reliability, and to recognize value (quality and price) based on a product's commercial acceptance in the marketplace. Price should not be the sole determinant, especially for procurement of complex systems and services.

This ideal was supported by RADM Robert Moore, the Navy's Competition Advocate General [Ref 4: p. 50]:

> The objective is to...change the focus of Navy acquisition away from lowest price to a contractor's capability to produce quality products.

On 25 February 1986, President Reagan signed Executive Order 12552, which required all departments of the federal government to improve the efficiency, effectiveness and quality of the products or services delivered through TQM [Ref 7: p. 4]. The President's productivity objectives also set a goal of 20% productivity improvement in appropriate functions by 1992.

In September 1987, Everett Pyatt, the Assistant Secretary of the Navy (Shipbuilding and Logistics), issued a policy memorandum on source selection procedures within the Navy which stated [Ref 14]:

> The goal should be to define the quality standards appropriate to each requirement and to communicate them plainly to selection officials and to all offerors. When the quality desired can be sufficiently defined to assure success and proposals can be evaluated to determine if they meet the specified quality, then the source selection criteria should be: "award to the lowest priced (realistic price for cost type) technically acceptable offeror."

On 18 August 1988, then-Secretary of Defense Frank Carlucci announced that DOD would formally implement TQM throughout all DOD activities. He stated that TQM would

require a complete change in our traditional approach to doing business [Ref 7: p. 2] and that:

> I am giving top priority to the DoD Total Quality Management effort as the vehicle for attaining continuous quality improvement in our operations, and as a major strategy to meet the President's productivity objectives under E.O. 12552.

Within this overall effort, Dr. Robert Costello, the former Under Secretary of Defense (Acquisition), presented 10 major items on his 1988 defense acquisition agenda which included the goals of: improving product quality to reduce the cost of defective products and services through TQM, and achieving substantial reductions in the lifecycle cost of ownership of weapon systems [Ref. 6: p. 13]. Dr. Costello provided further amplification of his goals [Ref. 6: p. 14]:

> We must emphasize competition based on quality as well as cost, schedule and performance, including lowest bid. Our objectives include: making quality a factor in source selection; giving extra consideration to companies whose products and services embody the new concept of continuous product improvement... To implement this strategy, we will: encourage contracting officers to look for ways to increase quality when preparing requests for proposals and negotiating contracts... Industry must provide tangible evidence of its commitment to quality.

It is not only DOD that is fast becoming an ardent proponent of quality as a prominent source selection evaluation factor, industry is also voicing its opinion that quality is a critical business issue in reforming the DOD acquisition system. The Navy League Executive Forum identified this concern [Ref. 15]:

> The Navy position regarding the importance of price should be more flexible. There are occasions when the Navy's best

interest would be served by deemphasizing price in the selection process, such as when a substantially better quality product is available for a relatively modest price premium...The Navy should develop source selection criteria recognizing past performance as part of "best value" and control the use of price as an overriding selection criteria. We should improve the development of selection criteria, and expand programs to collect and share vendor performance data...

H. THE ARMY'S USE OF TQM AND STATISTICAL PROCESS CONTROL IN SOURCE SELECTION

One of the first extensive uses of TQM and Statistical Process Control (SPC) factors in a formal source selection procedure for a major defense acquisition was completed in March 1990 when the U.S. Army Communications-Electronics Command (ACEC) awarded two multiyear contracts to ITT and Varian for the production of third generation night vision devices and tubes [Ref. 16]. The solicitation was structured utilizing a best value basis for award, and the Army agreed to a total evaluated price of $491M, which was $47M higher than the lowest priced combination of awards, an approximately 10% price premium paid through the best value decision. The Army considered night vision devices to be the "backbone" of its night-fighting capability, and it conducted the acquisition with a method which ensured that the Government would obtain the most advanced equipment of the highest quality with the best follow-on logistical support at the lowest total cost of ownership [Ref. 16].

There were four evaluation factors in Section M of the Request for Proposals (RFP): Price, Technical, Product Assurance and Test (PA&T) and Production and Management (P&M). Price was more important than any one of the other three factors, which were of equal weight. Combined, however, the other three factors were significantly more important than price. Additionally, the RFP explained that past performance would be separately evaluated to assist in determining overall performance risk [Ref. 16].

In conjunction with the basic proposal evaluation, SPC was evaluated as one of the five subfactors within the PA&T factor, and TQM was evaluated as one of four subfactors within the P&M factor. In addition, both TQM and SPC were also independently verified as part of the separate past performance/performance risk assessment (PP/PRA). ACEC was careful not to mention specific TQM or SPC requirements or methods in the solicitation, but mentioned that the Source Selection Evaluation Board members would analyze how offerors would employ their TQM and SPC techniques to facilitate quality performance on this particular contract. Additionally, the SSEB would assess the offeror's management commitment to timely production and delivery of only the highest quality equipment [Ref. 16].

ACEC conducted several industrywide briefings, culminating in formal presolicitation and preproposal conferences. Great pains were taken to ensure that the competitors understood how

the evaluation and selection process would be conducted. The competitors were given ample opportunity to explore and resolve any and all issues [Ref. 16].

ACEC's philosophy was that a contractor's past performance record is a strong indicator of its ability to successfully perform in the present and future. Therefore, the offerors were informed that a detailed review of particular areas of past performance would be evaluated to assess performance risk. The evaluation of past performance was conducted by a separate evaluation team within the SSEB. The evaluation encompassed information provided by the offerors in their proposals as well as extrinsic data, and focused on the extent to which the offerors had previously utilized SPC and TQM techniques and the results attributable to such efforts [Ref. 16].

The results of the basic proposal evaluation for each factor (other than price) were then correlated by the SSEB chairman with the PRA for each factor to provide the overall factor ratings. Ratings for the basic evaluation and the overall rating were: outstanding, acceptable and marginally acceptable, and the PP/PRA ratings were: low, moderate and high risk. No numerical scores or weightings were used, and the blending of the basic evaluation rating and the PP/PRA rating into an overall rating for each non-price factor was somewhat subjective. For example, an "acceptable" basic

evaluation rating for PA&T may be raised by a "low" PP/PRA rating to produce an "outstanding" overall rating [Ref. 16].

The award was immediately protested by Litton to the General Accounting Office (GAO) based on the issue of ACEC's accuracy of the PP/PRA ratings for TQM and SPC. Litton alleged that ACEC placed undue emphasis on TQM and SPC in a manner inconsistent with Section M of the RFP, and that TQM and SPC were undefinitized "paper philosophies" for which there was no formal Army guidance. In ruling in favor of the Army, GAO addressed and rejected each of the allegations, a decision later affirmed by the Federal District Court. Consequently, the validity of the evaluation of TQM and SPC in the DoD source selection process was carefully reviewed and confirmed, provided the source selection process is conducted consistent with the process described in the solicitation [Ref. 16].

GAO's decision contained references to ITT's mature, well run TQM program that provided a process to ensure continuous quality improvements and delivery of only the highest quality products to the Government. The decision also stated that ACEC's award determination was consistent with the evaluation criteria, and it was in the best interest of not only the Government, but the soldiers and aviators whose lives depend on the quality of the goggles. A definitive determination of whether this source selection process was successful or not cannot be made at this time. No statistical or quality data

either from production on this contract or from user feedback is currently available to verify whether the 10% price premium paid was cost effective [Ref. 17].

I. A DoD INITIATIVE TO INTEGRATE TQM INTO SOURCE SELECTION

In 1989, the former Under Secretary of Defense for Acquisition, the Honorable John A. Betti, tasked the Army, Navy, Air Force and the Office of the Secretary of Defense (OSD) to form a Process Action Team (PAT) to examine alternative means for integrating TQM into the source selection process for all of DoD [Ref. 7]. The trend now was to not only support the implementation of TQM throughout the defense establishment, but to encourage and motivate the defense industrial base to adopt some form of TQM into its day to day operations.

In May 1990, this PAT completed development of draft guidance which provides program managers, contracting officers and source selection personnel with practical guidelines for making TQM a consideration in source selection. The Draft Guide to Integrating Total Quality Management into Source Selection was developed to foster consistency among Services/Agencies in integrating TQM into source selection, but was designed to afford the PCO the flexibility to tailor and adopt the approach to meet specific program needs [Ref. 8: p. 1]. The PAT's concept is to accomplish the goal of taking into account offeror's continuous process improvement

activities by treating continuous process improvement as part of the SSEB's PRA. The PRA provides a confidence measure to the Source Selection Activity (SSA) of the offeror's potential to perform on the proposed contract.

The Draft Guidance referred to the use of a solicitation provision based on a modified version of the Malcolm Baldridge National Quality Award (MBNQA) guidelines to obtain the information for the assessment. Currently there is no modified MBNQA guidelines for use as solicitation provisions or as source selection evaluation criteria due to an indefinite halt in the finalization of the Draft guidance into a formal instruction [Ref 18].

J. SUMMARY

After discussion of what quality and TQM are generally accepted as being defined as, evidence was presented that the DoD acquisition community has the desire, incentive and mandate to integrate TQM or other quality factors into source selection. Evidence was also provided that the MBNQA guidelines are a viable information collection and assessment tool to gauge corporate adoption of some form of TQM or continuous process improvement in its operations and products or services.

The next chapter will describe the DoD/Joint Service/Agency PAT Draft Guide in more detail, and will present the researcher's source selection procedure model.

The flexible model will be a synthesis of the ACEC's method of procurement for the third generation night vision devices with the evaluation guidelines or criteria suggested by the PAT in their Draft Guide.

III. A SOURCE SELECTION PROCEDURES MODEL

A. INTRODUCTION

Chapter II presented definitions of quality and TQM, a description of the Malcolm Baldridge National Quality Award, evidence of willingness among Government PCO's to use quality factors in their source selection processes, the successful use of TQM and SPC evaluation factors by the Army in a major acquisition, and a general overview of a current DoD/Joint Service/Agency initiative to develop and promulgate a guide for integrating TQM into source selection. This chapter will describe the DoD initiative in more detail, and will present this researcher's source selection procedures model.

B. OVERVIEW OF THE DRAFT GUIDE TO INTEGRATING TQM INTO DoD SOURCE SELECTION PROCEDURES

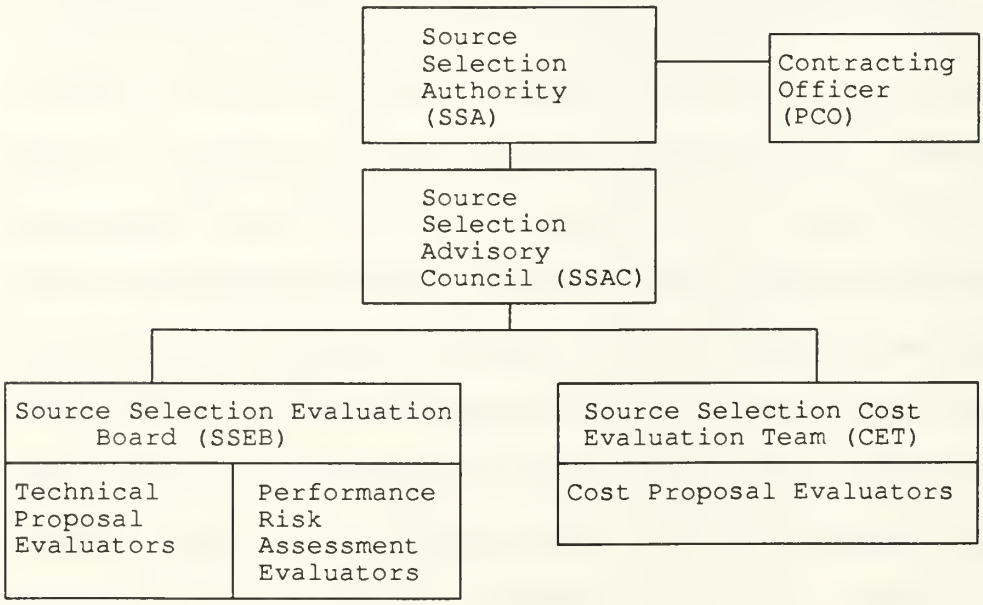
The DoD/Joint Service/Agency Process Action Team draft working paper of a Guide to Integrating Total Quality Management (Draft Guide) was given a limited distribution in DoD for the collection of constructive feedback from selected services and agencies on May 8, 1990. The Draft Guide was subsequently revised and distributed for review and comment again on November 5, 1990. Appendix B consists of sections III through VII of the November 5, 1990 draft working paper. Sections I and II are the Introduction and the Concept

portions respectively, and they are summarized in the remainder of this section.

The Draft Guide was developed to foster consistency among the DoD services and agencies by recommending an approach for the inclusion of TQM factors into the source selection process by PCO's and PM's [Ref. 19 : p. 1]. It is primarily applicable to major defense system acquisitions covered by DoD Directive 5000.1 (Major and Non-Major Defense Acquisition Programs), but may be used in any other DoD acquisitions at the discretion of the service or agency [Ref.19: p.1]. The recommended procedures also allow PCO's the flexibility to tailor or adapt the concepts to meet the specific needs of particular acquisitions.

The principal rationale for the development and promulgation of the Draft Guide is that offerors are most likely to provide high quality, on-time, within-cost products and services if they have viable continuous improvement efforts backed up with demonstrated results [Ref. 19]. The goal of the Guide is to take into account the maturity and effectiveness of the offeror's continuous process improvement (CPI) programs as part of the source selection process [Ref. 19: p. 2]. Primary emphasis is placed on tangible evidence and verifiable proof that these CPI vehicles are in place and functioning effectively in time for the execution of the proposed contract, not just existing on paper or brochures.

The key strategy for achieving the goals and intentions of the Draft Guide is treating CPI and offeror past performance as part of the SSEB's estimate of the risk involved in making a contract award to a given offeror. An RFP provision based primarily on MBNQA guidelines being modified through a reduction in scope and detail is used to obtain offeror information for this assessment. Also included in the risk assessment is an evaluation of the offeror's past and present performance record [Ref. 19: p. 2]. Together, these evaluations by SSEB teams comprise a PRA, and the recommendations of the SSEB are forwarded to the SSAC for further evaluation. The source selection organization to which the Draft Guide and the recommendations of this thesis are primarily applicable to is the standard organization for most major weapon system acquisitions. [Ref. 20].


Source Selection Authority (SSA)
Contracting Officer (PCO)
Source Selection Advisory Council (SSAC)
Source Selection Evaluation Board (SSEB)
Technical Proposal Evaluators
Performance Risk Assessment Evaluators
Source Selection Cost Evaluation Team (CET)
Cost Proposal Evaluators

C. SUGGESTIONS FOR FINALIZATION OF THE DRAFT GUIDE

In the opinion of this researcher, the Draft Guide could have offered more in-depth discussion on the following key areas for PM/PCO guidance or consideration:

1. Actual examples of solicitation guidelines derived from modified MBNQA guidelines;

2. specific recommendations for scoring or rating techniques or other quantitative evaluation standards for the SSEB to utilize in evaluating the offers and extrinsic evidence, other than the use of forwarding "narrative comments" to the SSAC on offeror strengths and weaknesses;

3. recommendations for a delineation of responsibilities for evaluation of the basic proposal and for the conduct of a PRA, and references to specific sources of extrinsic data for use in validating past performance in the PRA, other than: "discussions with technical and program managers... and...from actual performance data of products, where available."

In addition to the three areas found by this researcher to be in need of clarification or amplification, there is one procedure in the Draft Guide which this researcher recommends to be modified based on the results of the Army procurement described in Chapter II section G. This was one of the first cases where a service or agency has extensively utilized TQM and SPC as critical subfactors in a formal source selection procedure. ACEC's inclusion of TQM and SPC subfactors in the basic proposal evaluation as well as TQM, SPC and past performance areas in the PRA were supported by G.A.O. and Federal District Court decisions since ACEC was consistent in

performing the proposal evaluation and PRA in accordance with the terms in the RFP. Although the DoD/Joint Service/Agency PAT Draft Guide and the ACEC's third generation night vision device source selection procedure are similar in some respects, they are fundamentally different in other areas which have important implications for the extensive DoD-wide use of the Draft Guide in its current form. The most critical aspect in which the ACEC's procedures differ from the PAT Draft Guide consists of:

4. ACEC's use of TQM, SPC and past performance as subfactors set forth in Section "M" of the Request for Proposals (RFP) to be evaluated and rated along with the other subfactors within the Technical, PA&T and P&M factors. In addition, TQM, SPC and past performance were also evaluated in conjunction with the PRA. The adjectival rating from the basic proposal evaluation was tempered with an adjectival PRA rating by the SSEB Chairman to produce an overall rating for each factor of each proposal.

The remainder of this chapter will consist of recommendations for a revision of the Draft Guide based on the four areas listed above, including a proposal evaluation guideline model for use by the SSEB to evaluate and rate offeror response to Section "L" of the RFP.

D. RECOMMENDATIONS

1. Appendix C consists of a proposal evaluation model for the SSEB to utilize when evaluating, rating and scoring the sections of the offered proposals which address the CPI

portion of RFP Section "L" in Appendix B. It is sufficiently flexible enough to allow the SSEB to use either a numerical scoring system, an adjectival rating system, a narrative system utilizing summaries of strengths and weaknesses, or some combination of scores, adjectival ratings or narrative descriptions. The subordinate subfactors themselves are derived from the MBNQA guidelines, which have been:

a. modified into evaluation criteria with a DoD orientation i.e. DoD terms, special interest areas, and actual examples of items to give credit for while evaluating.

b. reorganized into a more logical sequence for evaluation;

c. modified to reduce overlapping and "double-weighting" in the evaluation process through a consolidation of related themes;

d. streamlined through deletion of specific subareas within certain guidelines because they were either inapplicable to DoD procurement, were too subjective, or were potentially too difficult to validate with extrinsic past performance data.

Source selection personnel must be aware that they can, and in many cases, should modify, expand, reduce or otherwise tailor the language contained in the subordinate subfactors of Appendix C. The "factor" heading has not been filled out in order to allow flexibility in assigning these evaluation subfactors to factors such as Technical, Management, Product Assurance and Test, Production and Management, Integrated Logistic Support or whatever the contracting activity's solicitation organization dictates.

2. In order to make the Appendix C proposal evaluation model a useful tool for the SSEB, Sections III and IV of the Draft Guide should be modified. The Acquisition Plan (AP) and Source Selection Plan (SSP) in Section III of Appendix B should be changed from a reliance on the conduct of a PRA only, to an adoption of the ACEC strategy of making TQM, SPC, and past performance rated factors in the basic proposal evaluation as well as rated factors in the PRA.

Also in Appendix B, the sample language in the Section IV Executive Summary and in Sections "L" and "M" of the RFP should be modified to inform the offerors that the Government intends to consider TQM, SPC and past performance as not only evaluation factors in the basic proposal evaluation, but as factors in a PRA performed separately and independently of the basic proposal evaluation. The recommended procedures for conducting the PRA will be addressed in Chapter IV of this thesis.

In order to provide an added degree of assurance that the offerors understand exactly what is required of them to be fully responsive to the solicitation requirements, the opening remarks of subsection 2.0 - Specific Information and Data, of Section IV, should be expanded to include the following instructions, which are modifications of the guidelines for MBNQA applicants when filling out their applications [Ref. 10]:

a. Read all of the solicitation categories and specific items within the categories before developing responses to any of them.

b. Interpret the meaning of each specific item within the context of the main purpose of the category.

c. Check related items to determine the distinctions between the types and extent of information required.

d. Respond to items with concise, factual statements. Support statements with quantitative information whenever appropriate. Use of graphs, charts, and tables, properly labeled and compactly presented is strongly encouraged. Lengthy narratives not directly responsive to the purpose and substance of an item are discouraged. Also, avoid the reiteration of the words and phrases of the solicitation items by using your own original words and phrases.

e. Avoid the use of anecdotal information or information lacking overall context. An example is at times appropriate, but offerors should make clear that the example illustrates the larger point being made, and is not itself the response to the item.

f. Report only what is requested in each item, and include only the types of information requested. Make responses self-contained, and not dependent upon information given in responses to other items. However, if other items contain information that will help to clarify or strengthen a response, and at the same time, avoid significant duplication of information, provide cross references.

g. Trend data are requested to permit applicants to demonstrate progress and to show that improvements are sustained. No minimum period of time is specified for trend data. Time periods for trend data may span up to five years or more for some product, service or operational characteristics, but may be much shorter in areas where improvement efforts have been established more recently. Trend data should be presented in graphical, tabular or other compact form. Include appropriate benchmarks or other references that help to ensure the proper interpretation of data.

h. Identify responses to categories and items within categories with the letters or numbers corresponding to each category and items within each category.

The actual solicitation categories and items within each category listed in the RFP subsection 2.0 - Specific Information and Data, should be the same as the wording of the evaluation factors and subfactors in Appendix C, instead of the wording of subsection 2.0 of the Draft Guide. This is to ensure that proposals are evaluated by the same criteria that are set forth in the solicitation.

3. The Draft Guide did not make specific recommendations for scoring or rating techniques, or other quantitative evaluation standards for the SSEB to use while performing the basic proposal evaluation or the PRA. This was the DoD/Joint Service/Agency PAT's intent because it would not be desirable to standardize the rating/scoring techniques throughout DoD. Maximum flexibility must be allowed in this area if it is to be of value to DoD services and agencies.

Based on the ACEC procurement, this researcher recommends a specific proposal and PRA evaluation method which utilizes a combination of the numerical scoring, narrative description and adjective grading techniques. Appendix D contains examples of proposal and PRA evaluation worksheets utilizing the Continuous Process Improvement of Processes, Products and Service component of the Quality Assurance of Products and Services subfactor. The XYZ Corporation is actually another

name for a real firm which submitted a proposal to ACEC in response to their solicitation for the third generation night vision devices. The proposal evaluated in this example was the actual proposal submitted by this firm. The maximum points column available for each subfactor item is filled in based on the relative weighting assigned by the SSEB. The assessment percentage is based on the overall scoring justification. The percentage is based on the evaluator's best assessment of the offeror's fulfillment of the requirement on the following scale developed by this researcher:

	Percentage:
Superior	90 - 100%
Acceptable	70 - 89%
Marginal	60 - 69%
Unsatisfactory	0 - 59%

The percentage selected should be justified in the "overall rationale for assessment %" section of the worksheet, based on a relative weighing of the strengths versus weaknesses.

Once the scores from the evaluation of each subfactor are completed for both the basic proposal evaluation and the PRA, the raw scores should then be summarized on a consolidated tally sheet, added together, then converted into an adjectival grade and risk level corresponding to whatever groupings of factors/subfactors the SSEB determines as logical, feasible or practical.

An example of this is provided in Appendix E. Here, the SSEB has consolidated the subfactor/factor scores into one

numerical score each for the Leadership and Personnel Management and the Continuous Process Improvement evaluation factors, although they could have grouped them in any manner which they deemed most useful. The raw scores are then converted into an adjectival rating and risk level for the basic proposal evaluation and PRA respectively. The final step is the "tempering" of the basic proposal evaluation rating with the corresponding PRA risk level into an overall rating for each factor.

Once the overall rating for each factor is determined, it is submitted from the SSEB to the SSAC along with any required supporting documentation for inclusion in a final award decision process. The rationale for the conversion of raw scores into adjectival ratings is that the numerical scores may be more difficult to justify to the SSAC, or to defend in the possible event of a GAO protest from an offeror or an interested third party.

4. The specific details of the conduct of the PRA by the SSEB, including recommended sources of extrinsic past performance data and recommended procedures for determining performance risk levels are contained in Chapter IV.

E. SUMMARY

This chapter described the DoD/Joint Service/Agency PAT Draft Guide in more detail, offered suggestions for modifications to be made to the Draft Guide before its

possible finalization, and presented a source selection procedures model consisting of a basic proposal evaluation integrated with a PRA. The next chapter will examine the Performance Risk Assessment process more thoroughly, and will present some of the current sources of contractor historical quality history available in DoD for the conduct of PRA's.

IV. PERFORMANCE RISK ASSESSMENT

A. INTRODUCTION

Chapter III and Appendices C,D, and E presented a source selection model consisting of a procedure for gathering offeror information through RFP language and solicitation provisions on an offeror's current TQM system or its own version of TQM, and the proposed methods the offeror intends to utilize in applying their continuous process improvement program to the proposed contract. Their proposal would then be evaluated and rated, and the resulting adjectival rating for a TQM related factor would then be either raised, lowered or remain unchanged by a corresponding level of performance risk into an overall rating for that factor. The basic evaluation of the offeror's proposal determines proposal risk, while the evaluation of the actual past performance of the offeror on related prior contracts or similar products/services determines performance risk.

This chapter will: 1. examine performance risk, 2. address the legal aspects of utilizing past performance data in determining performance risk, 3. describe a recommended five step procedure in performing a Performance Risk Assessment, and 4. will list and describe some of the various primary and

secondary sources of past performance data available to DoD procurement officials today.

B. PROPOSAL VERSUS PERFORMANCE RISK

When conducting the source selection process for major weapon system procurements, Research and Development efforts, large services contracts or selected other non-major purchases which involve complexities or advanced technology or technological risk, the Government must assess the relative risks associated with each offeror and proposal. These risks may be classified as being either a proposal risk or a performance risk [Ref. 21: p. B-2]:

> Proposal risks are those associated with an offeror's proposed approach in meeting Government requirements. Proposal risk is assessed by the SSEB and is integrated into the rating of each specific evaluation factor and subfactor.
>
> Performance risks are those associated with an offeror's ability to perform the solicitation's requirements as indicated by that offeror's record of past and current performance. Performance risk may be assessed by an SSEB team independent of and distinct from the team assessing the proposal risk, or it may be assessed by a Performance Risk Analysis Group (PRAG) separate from the SSEB.

C. THE IMPORTANCE OF ASSESSING PAST PERFORMANCE IN A PRA

It has often been said that, whether it be in reference to the history of the world or in DoD acquisition, that the past is prologue. Edward J. Korte, the U.S. Army Materiel Command Counsel said it best [Ref. 22]:

> It has been said that history repeats itself, and that the person who does not study the past and learn its lessons

> will likely be given another, often more painful opportunity to learn. This observation is also true in the world of Government contracts. For example, a failure to adequately address a contractor's poor performance invariably haunts our future procurements. When we fail to deal effectively with a chronic, poor performer, we are often later confronted with the same problem, frequently compounded, and much more difficult to resolve.

DoD Directive 4105.62, "Selection of Contractual Sources for Major Defense Systems" states that [Ref. 21: p. 2]" the offeror's recent and relevant past performance (measures by such indicators as quality, timeliness, cost, schedule, operational effectiveness and suitability) may be considered in assessing the probability Of successful accomplishment of the proposed effort in a timely, cost-effective manner." Further justification for the assessment of past performance in source selection decisions is provided in DoDD 4105.62 [Ref. 21: p. 2]:

> Proposal evaluators must consider the technical, schedule, operational readiness and support, and financial risks inherent in a proposal. One means of assessing that risk is to review an offeror's recent actual performance in relevant areas. Past performance as an element of risk analysis, may be used as one predictor of the probability of satisfactory performance on the proposed program being evaluated. Evidence of past performance may be obtained from numerous sources, such as the offeror's preaward surveys, onsite Government personnel at a contractor's facility, field data collection systems, and other procuring activities that are or were customers of the offeror whose proposal is being evaluated.

As mentioned in Chapter II Section F (B), the FAR also requires that quality be addressed in every source selection, and specifically that in evaluation factors [Ref. 12: p.

16,926]: "quality may be expressed in terms of .....prior experience.... past performance and schedule compliance."

D. BASIC ELEMENTS AND LEGAL ASPECTS OF THE PRA

Past performance evaluations in federal acquisitions are unfortunately neither commonplace nor consistent [Ref. 22: p.1]. Some procurement activities hesitate to consider past performance for fear of injecting bias into the evaluation process, others hesitate due to a general uncertainty in the interpretation of the law. Many other procurement activities see the obvious value in past performance evaluations, but are unsure of the PRA procedure. Those activities which do evaluate past performance rely almost exclusively upon contractor supplied data rather than on independent data otherwise available to the Government [Ref. 22: p. 1].

Some of the hesitation and confusion associated with past performance evaluations can be alleviated by reviewing the basic elements and issues involved, and by understanding the legal aspects and precedents.

1. Past Performance vs Preaward Survey

Past performance evaluations are not the same as preaward surveys, as each serves a different purpose. Preaward surveys are conducted to determine whether a contractor is responsible, or whether the contractor is capable of doing the job. Past performance evaluations, such as PRA's, are conducted as a part of the source selection process in

negotiated procurements to determine if a contractor is acceptable. The determination answers the question, will he do the job successfully? [Ref. 21: p. 1]. Preaward surveys are conducted by the contract administration office, and based on on-site inspection or information on hand, an estimate of the offeror's capability to perform a particular contract is determined. The past performance evaluation is a very specific endeavor performed by the procurement contracting office to identify the degree of risk associated with each offeror, and rely's solely on each offeror's track record on previous contractual efforts [Ref. 21: p. 1]. If properly conducted, the past performance evaluation and the preaward survey will supplement each other and provide a more complete picture of an offeror's capability than either one could by itself.

2. Key Features of a PRA

There are basically three key features to consider when performing a past performance evaluation or PRA [Ref. 21: p. 3]:

1. Extrinsic information. A thorough evaluation of past performance will include evaluation not only of information provided in proposals, but also information obtained from other sources. When this is done, the solicitation should clearly advise offerors, among other things, that the Government intends to consider information outside of the proposal (extrinsic information).

2. Separate evaluators. To guard against injecting undue bias into the evaluation process, reasonable/sound practice suggests separation of those evaluators who evaluate performance risk

from those evaluators who evaluate the basic proposal factors of cost,technical, management, etc. An important function of this independent assessment group is to insure that only relevant, recent and accurate past performance information is considered in the evaluation.

3. Centralized starting point. Evaluators must have available to them a central system that expeditiously provides them sources of information other than these cited in the proposals. These systems of data collection, storage and retrieval are covered in section F of this chapter.

3. GAO

GAO will give great deference to the procurement agency's perception of a contractor's past performance provided that the Government follows the ground rules set forth in the solicitation, and reasonably considers the contractor's data [Ref. 22: p. 2]. The Government clearly has the right to consider information outside of an offeror's proposal to evaluate past performance [Ref. 22: p. 2]. Past performance is a responsibility-type criteria, and it may be used as an evaluation criteria in source selections only to make a graded assessment of the relative merits of an individual proposal, or to determine the likelihood that a particular offeror will successfully perform a contract based on the contractor's record under other contracts (i.e. a PRA). If past performance is used to determine the acceptability or unacceptability of a proposal on a "pass/fail" basis, an unacceptability determination will likely be treated by GAO as tantamount to a non-responsibility determination [Ref. 22: p.

3]. As is the case in making non-responsibility determinations, the ground rules for considering performance data in the source selection process are that the extrinsic data must be current, accurate and relevant to the contract being considered for award [Ref. 22: p.3].

The Government is not required to allow offerors to review and rebut the sources or references which the Government utilizes when evaluating past performance. However, the Government should take every reasonable measure to insure the accuracy of the data relied upon during the PRA. To the extent that the extrinsic data gives rise to "deficiencies," the Government has the normal duty to disclose such deficiencies along with any others found during the evaluation process to those offerors within the competitive range for negotiations [Ref. 22: p. 2]. Also, the evaluation of a contractor's past performance does not relieve the contractor of its burden of proving the technical acceptability of its proposal. Stated differently, the Government is under no obligation to seek out extrinsic data to cure deficiencies contained in a proposal [Ref. 22: p. 3].

E. CONDUCT OF A PERFORMANCE RISK ASSESSMENT (PRA)

A PRA is a process designed to determine a confidence measure of an offeror's potential to perform the requirements of a solicitation. Generally, it includes a review of each offeror's past performance and an assessment of the current

risk each offeror poses based on how they have performed in the past. This analysis may be conducted by a team within the SSEB, but separate from the proposal cost/technical evaluation team as recommended by the DoD/Joint Service/Agency PAT, or it may be conducted by a group totally separate from the SSEB, called the Performance Risk Assessment Group (PRAG) as recommended by the ACEC. In either case, the results of the PRA are forwarded to either the SSAC, the SSA or the PCO, depending on the organization of the procuring agency. The SSAC, SSA or PCO then utilize this data in concert with the other evaluation results to determine overall factor ratings and competitive ranges, to determine weakness, deficiencies and questions for negotiations, and, finally, to select the awardee [Ref. 21: P. E-3].

The SSEB PRA team or the PRAG should consist of personnel with technical and/or contractual expertise, as well as skills in the following areas [Ref. 21: p. E-4]:

1. Ability to conduct meaningful interviews in an unregulated, open-ended environment.

2. Ability to assimilate voluminous amounts of data, arrive at appropriate conclusions, and communicate those conclusions effectively both orally and in writing.

3. Ability to evaluate an offeror's TQM system or its equivalent based on past performance data, and identify and assess the principles, practices, tools and techniques of continuous process improvement.

It is also highly recommended that each member of the PRA team receive formal training in area 3 above through an in-depth TQM training course, such as the one offered at the Defense Systems Management College (DSMC) [Ref. 19: p. 9].

The necessary data and sources of data to perform the PRA is covered in more detail by Sections E and F of this chapter. Once the PRA team is assembled and trained, the information gathered on all the offerors within the competitive range is assessed through a five step process to develop performance risk ratings.

STEP 1. The very first step the PRA team should take is to establish a methodology for assessing the degree of risk and to identify the advantages and disadvantages of the performance of this contract by a given offeror based upon his past performance.

STEP 2. Next, each member should become very familiar with the statement of work and specifications in the RFP.

STEP 3. In the next step, they should sift through the collected information and data to determine the relevancy of present and past contract efforts to the solicitation requirements. It is important for the PRA team to consider, at this stage, the fact that information pertaining to the proposing prime contractor division may not be broad enough in scope if other divisions, affiliates, subsidiaries, critical subcontractors or teaming contractors also perform a critical

element of the contract, or significantly influence the proposed effort [Ref. 21: p. 6].

PRA's should consider both the number and the severity of problems, the effectiveness of the corrective actions taken, and the overall work record of the offeror and the other key participants [Ref. 21: p. 6]. The assessment of performance risk is not intended to be a simple arithmetic function of an offeror's performance on a list of prior contracts. The information deemed most relevant and significant by the PRAG should receive the greatest consideration, or the most weight [Ref. 21: p. 6]. The degree to which the offeror has demonstrated that past and present problems have been resolved or that planned performance has been achieved will be an indicator of the ability of the contractor to successfully achieve planned performance on the contract [Ref. 19: p. 8]. The following definitions of performance risk are the most commonly used and most highly recommended [Ref. 21: p. 7]:

1. High risk- Significant doubt exists, based on the offeror's performance record, that the offeror can perform the proposed effort.

2. Moderate risk- Some doubt exists, based on the offeror's performance record, that the offeror can perform the proposed effort.

3. Low risk- Little doubt exists, based on the offeror's performance record, that the offeror can perform the proposed effort.

4. Unknown (neutral) risk- No performance record identifiable.

A basic rule of thumb for the assignment of the above risk levels is: if an offeror has performed consistently well in the past, then that offeror would be considered a low risk with regard to the instant procurement. If an offeror's previous performance has been inconsistent, then patterns leading to that spotty performance should be analyzed and a correspondingly higher risk assessment made. An offeror who has demonstrated consistently poor performance would be considered a high risk [Ref. 21: p. E-10].

STEP 5. In the event that performance data gives rise to a "deficiency," the PRA group should provide the contracting officer with a summary of derogatory performance information collected for each offeror for discussions [Ref. 22: p. 17] As another means for insuring the accuracy of the data collected, the contracting officer,in conducting discussions, should provide the offeror's the opportunity to comment on these deficiencies.

STEP 6. The final step should be the complete documentation of the PRA effort, and the forwarding of these documents to the appropriate SSAC, SSA or PCO. The documentation should address [Ref. 21: p. 7]: 1. the sources of performance data, 2. the relevancy and significance of the data, 3. the currency of the data, 4. the Performance Risk Assessment of each offeror, and 5. the supporting rationale for each performance assessment. It is important to note that all performance data gathered by or included in documentation

used by the PRA team, is considered as source selection information, and should be protected against unauthorized disclosure [Ref. 21: p. 7].

F. PRIMARY SOURCES OF PERFORMANCE DATA FOR THE PRA

There are numerous sources of contractor present or past performance information and data for the PRA teams today. Some sources are centralized data bases for a service, agency, of DoD wide use, and are known as primary sources. Some are decentralized into various local contracting activity files or DCAS audits/on-site visits, and some are telephone interviews or written inquiries from knowledgeable points of contact, known as secondary sources. Before a more in-depth review is made of these sources of information and/or data, a clarification of the difference between a past performance application system and a past performance data base must be made [Ref. 23]:

> **Contractor Past Performance Application System (AS)**-- any system that uses contractor past performance data in support of award decisions for a specific source selection or procurement.
>
> **Contractor Past Performance Data Base System (DBAS)**-- any system for the primary purpose of the collection of contractor past performance data for general use.

The following is the most current inventory of DoD contractor past performance data collection initiatives by Service or Agency, with a coding as to whether they are a

contractor past performance data base system or a mixture of both a data base system and an application system [Ref. 23]:

NAVY

1. Navy Product Deficiency Reporting and Evaluation System: (DBAS) An automated Navy central data base system for recording information on the historic quality performance of Navy contractors. This system is supported by a group of internal (i.e. Contractor Evaluation System, Quality Deficiency Report System, Report of Discrepancy System) and external (i.e. DLA Alert List, DLA Method C,D,E Program) feeder data bases, and is managed by NMQAO in Portsmouth, New Hampshire.

ARMY

2. Army Contractor Information System (CIS): (DBAS/AS) Contains both a data system (Contractor Information Reports) and a corresponding application methodology. A CIR contains administrative data, a "network" of points of contact, and alerts to quality, delivery, and cost performance problems. CIR's are used during source selection to supplement contractor-supplied information and data from other government sources to support a performance risk analysis.

3. Army Contractors Requiring Special Attention (CRSA): (DBAS) A data base implemented by the Army Materiel Command which identifies and gives special attention to a contractor experiencing problems in delivery delinquencies, quality and/or cost. Contractors are notified when placed on the program and are tasked with developing "get-well" plans.

4. Army Commodity Command Standard System (CCSS): (DBAS) This is the Army's wholesale logistics data base management system which operates at the Army Materiel Command's six commodity commands. It links financial management, material management, and contracting information into unified data bases. Available data relevant to performance include contractor delivery and award history.

5. Army Contractor Performance Certification Program (CP/2): (DBAS) An automated data base that tracks contractors who are voluntarily enrolled in (CP/2) and/or certified for good quality and production performance. Certified status is granted after the contractor successfully achieves milestones which show improvement in process control, manufacturing discipline and product quality. Certified status is made available to contracting officers for consideration in source selection decisions.

6. Army Deficiency Reporting System (DRS): (DBAS) This is an automated data base that track customer complaints on material in the supply system or the field. Customer complaints are thoroughly investigated, contractor liability determined and corrective action initiated. When contractor liability is determined on an excessive number of customer complaints against a specific item, then Quality Assurance informs Procurement that the manufacturer is a poor risk for future awards.

7. Army Contractor History Files: (DBAS) Data bases developed separately by individual contracting activities in the Army Materiel Command to record quality history on individual contracts. Data can be manipulated to synopsize quality performance of specific contractors. Information forwarded to contracting officers on request.

AIR FORCE

8. Air Force Systems Command Contractor Performance Assessment Report (CPAR): (DBAS) This manual data base system provides detailed information and an assessment of the on-going performance of selected contractors on major systems procurements. The data base consists of the narrative assessment of the project manager as supported by his functional experts, coupled with surveys and questionnaires returned by other agencies. Each buying division has a library of all CPAR's. The data is available to officials for consideration in making new contract awards.

9. Air Force Logistics Command Contractor Responsibility Review Program (CRRP): (DBAS/AS) This automated data base and application system is used to support responsibility determinations for

smaller procurements. Inputs include quality and delivery data.

DEFENSE LOGISTICS AGENCY

10. Defense Logistics Agency (DLA) Contractor Profile System: (DBAS) This proposed data base system will contain various historical views of contractor information from preaward survey data through delivery of the end item. This system is broad based and will contain data on production, quality, contract administration, financial services, engineering, property, procurement, and legal. This system is intended to be an information sharing system with the military services tied in via the DoD network.

11. DLA Standard Automated Materiel Management System (SAMMS): (DBAS) This is the DLA interactive, multifunctional data base system. It is comprised of the requirements, distribution, technical, financial and contracting subsystems. Among its other functions, the latter component automatically generates purchase requests and trailers containing past performance data.

12. DLA Mechanization of Contract Administration Services (MOCAS): (DBAS) This is the present data base system concerning contracts assigned to DLA for administration. This system contains much current delivery history, financial information, and other contract/ contractor data. Some of the military services are already tied in to this system.

13. DLA Preaward Survey System (PASS): (DBAS) This automated data base system, designed as a subset to an overall contractor profile data base system, provides information related to a contractor's past performance. The PASS includes, but is not limited to, production, quality assurance, transportation, property and financial/accounting information arranged in a series of on-line preaward survey forms. DLA provides access to buying activities for on-line queries.

14. DLA Customer/Depot Complaint System (CDCS): (DBAS) This is a standardized data base system designed to track and monitor quality complaints received

by the individual supply centers from customers, supporting supply activities, and service and DLA depots. Types of complaints received include QDR's, ROD's and storage quality control reports. CDCS interfaces with SAMMS.

15. DLA Quality Evaluation Program: (DBAS) The QEP is a quality history data base system developed in response to IG and GAO findings that DLA was not using available Government quality data in awarding contracts. QEP is currently used specifically to aid in an assessment of a contractor responsibility. Data is maintained on both a contractor and an item basis. QEP includes information on first article testing, postaward orientation conferences, quality systems management visits and reviews, product waivers and deviations, quality assurance letters of instruction, contracts reviewed by the quality element, and special quality assurance action information.

These are the primary sources of information for each respective service or agency, and there is nothing which prevents one service from using the data base of another service or DLA. None of the data bases discussed in the preceding paragraph were specifically designed for use with a particular methodology for conducting past performance evaluations in source selections. They all lacked consistency in data elements, and because they are maintained for different purposes, there is a lack of uniformity in how the data is formatted [Ref. 22: p. 9]. Further, none of the data bases include performance information for all types of contracts and requirements.

G. SECONDARY SOURCES OF PERFORMANCE DATA FOR THE PRA

There are many secondary sources of data to supplement these primary sources, and these include, but are not limited to the following [Ref. 24]:

1. Certificates of Competencies (COC's): If a small business is determined to be non-responsible by a Government buying activity, the small business can request that the Small Business administration determine whether the business is responsible. If the SBA determines that the small business is responsible, then the SBA will prepare a COC to document that determination, and will send a copy to NMQAO for inclusion in PDREP.

2. Quality System Reviews: Performed by DCMC, they involve an evaluation of the contractor's quality procedures and verification that the contractor's quality practices conform to those procedures. Navy activities receive copies of quality system reviews if they request a copy.

3. Product Oriented Surveys: These are technical product inspections conducted in a contractor's plant when a buying activity desires to perform a special test on an item. They are performed by DCMC when requested by the buying activity. Copies of them are available upon request from NMQAO.

4. Discussions with technicians and program managers from actual performance experience, where available.

5. Contractor History Files: Data bases, both manual and automated, maintained separately by individual DoD contracting activities to record quality history on individual contracts.

6. Visits to contractor facilities by PRA team members.

7. Receipt Inspection Records

8. Production Lot Testing reports

9. References cited by offerors in their proposals.

10. Telephone interviews or written inquiries with selected Points of Contact (POCs) in any way knowledgeable of a contractor's previous efforts.

H. SUMMARY

This chapter examined performance risk from a legal standpoint, described a five step procedure for performing a PRA, and listed and described the various primary and secondary sources of past performance data available to DoD contracting activities today. The next chapter will present the methodology used to obtain feedback on the source selection procedure model from DoD personnel, and will summarize some of the feedback received and modifications made to the model in response to the feedback.

V. FEEDBACK AND ANALYSIS

A. INTRODUCTION

This chapter will present the methodology used to obtain feedback on the source selection model. The feedback was obtained from knowledgeable and experienced PCO's, contracting policy officials, contract specialists and instructors in contracting, and the DoD/Joint Service/Agency PAT. The information received will be presented by activity submitting it and by classification of the response. The comments not supporting the model will be analyzed and addressed separately. Modifications to the model based on this feedback will also be described.

B. METHODOLOGY

The refinement of the source selection model presented in Chapter III and Appendices C, D and E should be an iterative process utilizing revisions based on input from DoD contracting activities as well as commercial purchasing departments, and by use of an actual pilot test at a field contracting activity. The first step in this refinement process consisted of the forwarding of Chapter III and Appendices C, D and E along with a cover memorandum to knowledgeable and experienced naval officers and senior civil service officials working in the contracting or policy

divisions, or in teaching/instruction billets of six significant Navy commands: Naval Air Systems Command (NAVAIR), Naval Sea Systems Command (NAVSEA), Military Sealift Command-Pacific (MSCP), Naval Supply Center- Puget Sound, the Office of the Assistant Secretary of the Navy (Research, Development and Acquisition), and the Naval Postgraduate School, Monterey (NPS). In addition, a copy was forwarded to the Navy representative on the DoD/Joint Service/Agency PAT, Mr. Richard Findley.

The recipients of the source selection model were requested to read the model and provide constructive feedback on any aspect of the model in which they may have knowledge and experience. It was made clear that all comments regarding technical, theoretical, procedural, legal or practical aspects were encouraged for submission. All recipients with the exception of NSC Puget Sound responded to the feedback request.

C. FEEDBACK AND ANALYSIS

The responses to the feedback request will be summarized by command or group under four different headings based upon the category they fell within: comments in favor of the general concept, comments not in favor of the general concept, comments in favor of specific aspects of the source selection model, and comments not in favor of specific aspects of the source selection model. If a command did not have a response

in one or more of the four categories, it will not appear under that category. The comments that weren't in favor of the general concept and specific aspects of the source selection model will be addressed as a group after subsections (2) and (4).

1. Comments in Favor of the General Concept

NAVAIR [Ref. 25]:

> The incorporation of TQM into the proposal evaluation process is an important and worthy goal.
>
> The model provides an excellent template for others interested in incorporating TQM with the evaluation process. I think that the model achieves many of its objectives.
>
> The model offers a good starting point, but it must be altered to fit the needs and circumstances of the individual procurement.

NAVSEA [Ref. 26]:

> TQM/TQL in the source selection process is workable, and the concept is very current and useful. The effort put forth in constructing this model is noteworthy.

ASN(RD&A) [Ref. 28]:

> I believe the technique you have developed along with the rating categories are very good.

NPS [Ref. 29]:

> I think this is a great concept.
> Good ideas and lots of work/thought evident.

2. Comments That Weren't in Favor of the General Concept

NAVAIR [Ref. 25]:

> In general, parts of the model are OK- most parts are too cumbersome and more trouble than they are worth.

NAVSEA [Ref. 26]:

If the procurement process utilizing this model, or some version of it, is not performed correctly, contractors may try to resort to brochuremanship to make the Government happy, the last thing the Government wants.

ASN(RD&A) [Ref. 28]:

My concern is not with the approach you are taking, but in my professional view, the "over taxing" of our source selection process. Application of TQM into complex source selections which already require detailed analysis and review by evaluators is not sound.

To believe that we would pick a contractor based on his TQM package on a major source selection is extremely short sighted.

My real concern is we are compounding the source selection process with too many items which are effectively driving us more and more away from fully using our "common sense" capabilities when conducting a source selection. The fact that GAO and/or a court upheld our actions doesn't mean it is good business. In source selection, simple is always better.

I regret that I cannot be more receptive to your paper but my concerns are "good idea" but by the "wrong" approach

Source selection evaluations should not be the panacea to ensure that TQM is embraced.

NPS [Ref. 29]:

Most of the subfactors in Appendix C are too detailed and administratively burdensome.

I quickly came to the conclusion that I want to be the incumbent contractor when this SSEB meets. If company "A" has performed this contract previously and has data or "evidence" to support its contentions regarding TQM/SPC records, then I see it as having a large comparative advantage over competitors.

DoD/Joint Service/Agency PAT [Ref. 30]:

Your approach of developing evaluation criteria, while technically acceptable, may not be viewed favorably by contractors.

The central theme of the comments not in favor of the general concept was that the process of incorporating TQM into the source selection process was too administratively burdensome, and that it complicated an already complex system to the point where common sense could no longer be effectively applied. Other points reflected the thought that the process would result in brochuremanship from contractors, and that the incumbent contractors would have an inherent advantage over other competing firms.

Chapter III pointed out that this model is designed to be flexible, and part of its flexibility is that it need not be utilized in its entirety. A contracting activity may use those subfactors or subordinate subfactors which are applicable to the particular procurement. In order to make the model more streamlined and less administratively burdensome without compromising the intent of the procedure, nine of the original 23 subordinate subfactors were deleted because they overlapped other subordinate subfactors, or were either too difficult to evaluate or were inapplicable to DoD acquisition.

The other two points may not be potential sources of problems or complications if the model process is conducted properly. The PRA is designed to evaluate actual evidence of past and current performance independent from the offeror's proposal. If the offeror resorts to "brochuremanship" or "fluff," the PRA will detect the anomaly, and will reflect the

offeror's true performance in the overall rating. Incumbents should not have an inherent advantage if the contracting activity tailors the source selection process to minimize bias. If firms other than the incumbent do not have significant past experience which can be evaluated by the PRA, then the SSEB can assign a "neutral" risk to the offeror on the PRA. A "neutral" risk level will not adversely affect the overall factor rating. If the incumbent's performance has been either "outstanding" or "marginal" , then this fact will be appropriately reflected in the evaluations.

This model was not designed with the intent of placing TQM or other quality factors as the sole or even as the major source selection criteria for major systems acquisitions. TQM is but one subfactor among many factors and subfactors. This is why the model designed TQM to be subfactors and subordinate subfactors, as they are a part of a more encompassing set of evaluation criteria. TQM can play as large or as small a role in source selection decisions as the contracting activity desires. This is the flexibility built into this model.

3. Comments in Favor of Specific Aspects of the Model

NAVAIR [Ref. 25]:

> The inclusion of a requirement for TQM training for evaluators is excellent. This is essential to an effective evaluation.

MSCP [Ref. 27]:

> I like the concept of strong and weak point narratives in Appendix C.

DoD/Joint Service/Agency [Ref. 30]:

Your expansion on "Instructions to Offerors" is good...and provide good overall information that goes a long way toward ensuring that the offerors don't attempt to provide "fluff" instead of substantiated data.

4. Comments That Weren't in Favor of Specific Aspects of the Model

These comments were not taken for action in the modification of the model.

NAVAIR [Ref. 25]:

An important concern related to the model is the reliance on numerical scoring...I would require an adjective rating for each listed criteria, preferably with comments/rationale from the evaluators to support the adjectives assigned.

I think that 23 pages of evaluation forms is excessive and is likely to become counter-productive as evaluators struggle with that much paperwork. It also encourages proposals to be excessively lengthy.

NPS [Ref. 29]:

Appendix D looks OK- but if everything in Appendix C translates to Appendix D and evaluation forms, it's too detailed and burdensome.

DoD/Joint Service/Agency [Ref.30]:

Be aware that Navy policy has recently been emphasized that numerical ratings are <u>not</u> to be used.

The central theme of the comments that weren't in favor of specific aspects of the model was that numerical scoring techniques were discouraged by the Navy, and makes the acquisition process vulnerable to protests. The other comments reflected that certain areas of the model are cumbersome.

The Navy guidance was based on a policy memorandum from the Assistant Secretary of the Navy (Shipbuilding and Logistics) that prohibited the assignment of a numeric score to the proposed cost or price in a best value decision [Ref. 31]. The problems this memorandum addresses are situations where contracting activities assigned numeric scores to both cost/price and technical evaluation factors to arrive at a total point score. The source selection process in the researcher's model does not address cost or technical factors other than TQM and quality in general. The model is flexible enough to allow for numerical scoring, adjectival ratings or narrative comments, or some combination thereof. The model used a combination of all three systems to illustrate the flexibility of the procedures. In addition, the policy memorandum preserved the right for Navy contracting activities to use numerical scoring on non-cost/price factors [Ref. 31]:

> Contracting officers may continue to use numeric scoring in evaluating the technical portion of an offeror's proposal.

D. MODIFICATIONS TO MODEL BASED ON FEEDBACK

The following modifications have been made to the source selection model based upon feedback from the respondents:

(1) Every subordinate subfactor contained the phrases "provide credit for" and "evidence of." These phrases were replaced by "examples may include but are not limited to" and "documentation/ facts verifying the existence of"

respectively, because some respondents pointed out that the evaluation criteria as written made the Government appear as though it were mandating specific TQM practices to contractors. The word "evidence" was not forceful enough according to one respondent, who felt that the term "evidence" did not adequately describe what the evaluators needed to look for when evaluating proposals.

(2) Under subordinate subfactor A(1), Senior Executive Leadership, the example of "the request for documentation of senior executive leadership in and communication of quality excellence outside the company to various businesses, professional and community groups" was deleted because several respondents felt as though it was not directly applicable to contracting with DoD, and that it invited submission of "fluff."

(3) The "long term" planning mentioned in several subordinate subfactors were changed from "3-5 years" to "3-5 years or more" because a respondent made the case that 3-5 years was not a long enough time frame to be considered as true long term planning.

(4) Subordinate subfactor C(2), Quality Leadership Indicators in Planning, was deleted because several respondents pointed out that it was difficult to verify and had no real applicability to DoD contracting.

(5) Several respondents felt that the subordinate subfactor, Human Resource Management, of the Human Resource

Utilization subfactor was already covered by subordinate subfactors D(1) through D(4). Therefore, the Human Resource Management subordinate subfactor was deleted to avoid the double-weighting of this area.

(6) The subordinate subfactors "Quality Assessment" and "Documentation" of the Quality Assurance of Products and Services factor were deleted entirely because there was significant overlap between it and the subordinate subfactors E(1) through E(4).

(7) The subordinate subfactor "Complaint Resolution for Quality Improvement" of the "Customer Satisfaction" subfactor was deleted entirely because there was significant overlap between it and the subordinate subfactors F(1) and F(2).

(8) The entire "Past Performance" subfactor, including the subordinate subfactors: Quality of Products/Services Delivered, Compliance with Schedule, Integrated Logistics Support and Compliance with Cost/Price Parameters, was deleted because of many respondents pointing out the significant potential for overlap and consequent "double-weighting" possibility for the past performance areas. In addition, the PRA evaluates past performance almost exclusively, so the potential "double-weighting" of past performance between the basic proposal evaluation and the PRA was eliminated.

E. SUMMARY

This chapter presented the methodology used to obtain feedback on the source selection model from knowledgeable and experienced DoD personnel, and summarized some of the feedback received and modifications made to the model in response to the feedback. The final chapter will present the conclusions and recommendations of the thesis, the answers to the research questions, and recommended areas for further research.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

This chapter will discuss the conclusions and recommendations resulting from the thesis research. After presenting the conclusions and recommendations, the research questions will be answered. Finally, recommendations will be made concerning areas for further research.

B. CONCLUSIONS

The research upon which this thesis is based consisted of an extensive literature review, interviews with Government contracting, legal and policy personnel, and feedback on the source selection model from knowledgeable and experienced personnel at six Navy commands and the DoD/Joint Service/Agency Process Action Team. Based upon this research, the researcher concludes:

1. There exists in DoD today many programs, regulations, mandates and other incentives to incorporate TQM or other quality factors into the source selection process, just as commercial procurement practices do.

2. Navy PCO's are willing to utilize quality factors in their source selection process if they could have access to a feasible, legal and generally accepted method of source selection incorporating prestated quality measures, such as TQM.

3. The 1990 ACEC production contract for third generation night vision devices was awarded

utilizing TQM and SPC in the source selection process. ACEC's source selection process was feasible and legal, and only time will tell if the source selection process was successful in meeting the Army's goals for quality, timeliness, cost control and low costs of ownership.

4. The DoD/Joint Service/Agency PAT's Draft Guide for Incorporating TQM in Source Selection was not finalized, and consequently did not promulgate a specific or general model source selection plan with evaluation guidelines or criteria.

5. The model source selection plan described in Chapters III and IV and Appendices C, D and E of this thesis is a synthesis of the most feasible and viable procedures of the ACEC procurement, the PAT draft guidance and ideas of the researcher.

6. The model source selection procedures are flexible enough to be tailored, expanded or otherwise modified by local procurement activities into a workable source selection method.

7. Based upon an unscientific sampling of comments from Navy contracting activities, the general climate towards acceptance or usage of the source selection model is favorable. This favorable acceptance is contingent upon the requirement that the model be streamlined and less burdensome to both Government and contractor, and that the local procuring activity be able to tailor or modify it as necessary.

8. There exist pockets of strong resistance to the incorporation of TQM or other prestated quality factors into the source selection process due to a variety of philosophies, attitudes and perceptions. More universal acceptance of the model or the concepts behind the model may be gained as personnel in influential policy or contracting positions become more educated on or knowledgeable of TQM or other quality concepts.

9. The construction of a solid, viable and feasible source selection model which incorporates TQM or other quality factors into the DoD source selection process is an iterative process requiring continuous refinement, feedback, modifications and pilot testing.

C. RECOMMENDATIONS

Based upon the research and conclusions, this researcher suggests the following recommendations.

1. The DoD/Joint Service/Agency PAT should continue efforts to complete and finalize for distribution, the guidance for integrating TQM in the DoD source selection process. If or when this is done, the contents of Chapter III and Appendix C of this thesis should be considered for incorporation into the final draft.

The successor to the Honorable John A. Betti will have an extensive degree of influence over the decision whether to continue the effort to finalize the Draft Guide or not. If the decision is to continue with the guidance effort, then the PAT should consider the contents of Chapter III and Appendix C of this thesis. This thesis presents logical extensions, amplifications or modifications of the Draft Guide based on the literature research, interviews and constructive feedback from Navy contracting activities.

2. Efforts should be made by future researchers to further refine this researcher's source selection procedures model.

As recommended in Section D of this chapter, this researcher's source selection procedures model requires further refinement and update based upon input from other Government contracting activities, and from the private sector procurement personnel. An excellent method to further refine it would entail an actual pilot procurement test at an activity such as NAC Indianapolis or NWC China Lake.

3. Government contracting activities and commercial firms should institute or expand their training and education programs to include sessions or courses on the relationship between TQM or other quality factors and the source selection process.

One of the major impediments to acceptance or utilization of source selection procedures which incorporate TQM is education and awareness for both Government and commercial personnel. Inflexible attitudes towards quality factors and TQM are due in large part to fears of the unknown, misconceptions and resistance to change. Such barriers can be removed or lessened most effectively through unbiased, objective presentation of the basic fundamentals and definitions of quality and TQM as they relate to DoD contracts.

4. The Navy should make an attempt to bridge the significant gap between it and the other services and DLA in developing and utilizing quality history data bases which can incorporate contractor past performance into the source selection process.

In terms of the quantity, quality and maturity of data management systems which collect, store and disseminate contractor quality history for contractor responsibility or performance risk determinations, the Navy is far behind the other services and DLA. This point is reinforced graphically by a cursory review of the answer to subsidiary question number 5 in section D of this chapter.

D. ANSWERS TO THE RESEARCH QUESTIONS

Primary Research Question: What would be a useful and practical source selection procedure model for PCO's and SSEB's which would incorporate significant and quantifiable quality factors with a procedure to verify and validate offered contractor quality information with contractor quality history?

A useful and practical source selection evaluation procedure model would be a synthesis of the ACEC's method of procurement for the third generation night vision devices, with the evaluation guidelines or criteria suggested by the DoD/Joint Service/Agency PAT in their Draft Guide. The model in its most basic form consists of the determination of an adjective rating and a performance risk level for each evaluation subordinate subfactor based upon an evaluation of the basic proposal and a Performance Risk Assessment respectively. These separate evaluations would be conducted by two independent teams within the SSEB, and the basic proposal rating and the risk assessment level would be combined by the SSEB to form an overall rating for each evaluation factor. The overall ratings plus supporting documentation and narrative comments would be forwarded by the SSEB to the SSAC or SSA for a final award decision.

This model procedure is flexible because numerical weighting, adjectival descriptions and narrative comments can all be used either alone or in some combination with the others. The evaluation criteria for the basic proposal are modified application preparation guidelines for the Malcolm

Baldridge National Quality Award. The application process for this prestigious award is generally considered to be a very thorough and effective evaluation of a company's quality attitudes, values and assurance procedures. The contents of the subordinate subfactors can be tailored, or entire subordinate subfactors added or deleted depending on local procurement activity regulations or standard operating procedures. The PRA can utilize any available contractor historical quality data collection system or other sources of contractor quality data such as described in Section F of Chapter IV. The Army has proven that a similar source selection procedure can be defended successfully by GAO and the Federal District Courts as long as the contracting activity conducts the evaluation process by the same method that it describes in the solicitation.

Subsidiary Research Question 1: How are Packard Commission findings and recommendations, and DoD-wide TQM implementation efforts spawning attempts to incorporate quality considerations into DoD source selection practices?

After the Packard Commission performed an in-depth study of both commercial and Government procurement practices in 1986, it determined that DoD procurement has a tendency to emphasize award to the lowest priced offer at the expense of other important objectives such as quality, delivery and low life cycle cost. On the other hand, commercial procurement officials simultaneously pursue several objectives: attraction

of the best qualified suppliers, validation of product performance and quality, and the securing of the best price.

To remedy this situation, one of the Commission's recommendations was to revise Federal Law and DoD regulations to provide for substantially increased use of commercial-style competition, emphasizing quality and established performance as well as price. Price should not be the sole determinant, especially for procurement of complex systems and services, according to the Commission.

There are numerous other efforts, programs and regulations which have influenced the attitude of DoD procurement activities towards quality or TQM as source selection criteria. They range from an Executive Order by the President of the United States to the use of TQM and Statistical Process Control factors in a best value procurement of a major weapon system by the Army Communications-Electronics Command. A major effort to develop guidance for DoD in implementing TQM throughout not only the defense establishment but also the defense industrial base, began with the Honorable John A. Betti's formation of a DoD/Joint Service/ Agency Process Action Team. This team's central mission was to develop a guide for integrating TQM into the source selection process. However, the effort has not progressed beyond a second revision of the Draft Guide due to Betti's resignation.

The combination of the desire to take the Draft Guide a few steps further, and of the success of the ACEC procurement

in integrating TQM, SPC and a Performance Risk Assessment into the source selection process has formed the backbone of the model source selection process described in Chapter III of this thesis.

Subsidiary Research Question 2: How did the 1984 Competition in Contracting Act impact PCO use of best or greatest value source selection procedures?

Since CICA was implemented in 1984, there has been a widely held view that the defense procurement emphasis on the importance of price has actually intensified. There are three reasons for this based according to the Packard Commission:

1. the universal interpretation of the act's intentions as being that the Government must buy from the lowest bidder;
2. the notion among contracting activities that CICA precluded the use of qualification criteria, the consideration of technical expertise or of life cycle costs; and
3. the resulting focus on the numbers of competitions rather than on the success the competition achieves in terms of better products.

The goals and intent of CICA have been obscured by this notion that full and open competition precludes best or greatest value procurements, and GAO decisions have served only to reinforce these interpretations and notions. However, the recent passage of the FY 1991 Authorization Act (P.L. 101-510) has resulted in a revision of the FAR, and a removal of the restriction on award without discussion in instances where the award does not result in the lowest overall cost to the

Government. This reversal of the impact of CICA on the use of best value procedures on DoD acquisition is a positive step towards mollifying some of the adverse effects of CICA's implementation and interpretation.

Subsidiary Research Question 3: What are the current attitudes of Navy PCO's, PM's and commercial procurement personnel towards quality factors in DoD source selection?

CDR Charles A. Perkins, SC, USN performed an extensive survey of personal interviews with Navy PCO's, Navy Program Managers (PM's) and members of the National Association of Purchasing Management (NAPM) in 1988 as part of his dissertation research. Utilizing questionnaires, interviews, nonparametric and exploratory data analysis, CDR Perkins concluded:

1. price competition is a more significant factor in Navy procurement than in commercial/industrial purchasing;

2. the effectiveness of the Navy procurement process in obtaining quality products is inadequate because of the over-emphasis on price and the poor feedback of accurate and timely quality related information from the end-users back to the Navy PCO;

3. the comparison of the attitudes and preferences of the sample populations of Navy PCO's and NAPM members showed a significant difference in the importance that they place on quality factors in their purchase decisions, with heavier attention placed on it in the commercial/industrial sector.

4. satisfaction of the minimum specifications drives the award in price-based decisions; and

5. consideration of other non-price related factors evokes a notion that the item is goldplated, or that too much is being paid for an item.

Subsidiary Research Question 4: What quality values are considered as being the most critical and quantifiable to Navy PCO's today?

The results of CDR Perkin's dissertation research also confirmed that there is a definite concurrence among Navy PCO's, PM's and commercial procurement personnel that performance and reliability are the numbers one and two quality factors respectively in their ranking of the importance of quality factors. Navy PCO's ranked the remaining quality factors in order of performance as maintainability, schedule, durability, past performance and warranty respectively. Interviews with a cross section of Navy PCO's by CDR Perkins also confirmed his hypothesis that a model method of source selection based upon prestated quality measures would in fact be utilized in some of their procurements if a feasible and generally acceptable model were available to them.

Subsidiary Research Question 5: What are the various systems throughout DoD which collect and disseminate historical contractor quality history data, and could be utilized in the performance of a PRA?

The following is a brief listing of the most current data bases designed to collect and disseminate historical contractor quality history data (pure application systems as opposed to data collection bases are not listed):

NAVY

1. Navy Product Deficiency Reporting and Evaluation System (PDREP)

ARMY

2. Army Contractor Information System (CIS)

3. Army Contractors Requiring Special Attention (CRSA)

4. Army Commodity Command Standard System (CCSS)

5. Army Contractor Performance Certification System (CP/2)

6. Army Deficiency Reporting System (DRS)

7. Army Contractor History Files

AIR FORCE

8. Air Force Systems Command Contractor Performance Assessment Report (CPAR)

9. Air Force Logistics Command Contractor Responsibility Review Program (CRRP)

DEFENCE LOGISTICS AGENCY

10. Defense Logistics Agency Contractor Profile System

11. DLA Standard Automated Materiel Management System (SAMMS)

12. DLA Mechanization of Contract Administration Services (MOCAS)

13. DLA Preaward Survey System (PASS)

14. DLA Customer/Depot Complaint System (CDCS)

15. DLA Quality Evaluation Program

E. AREAS FOR FURTHER RESEARCH

1. Take the source selection model and send it to knowledgeable and experienced purchasing officials in the commercial sector for their input. Modify and refine the model as required to make it more feasible for actual use by DoD contracting activities.

2. Take the model and persuade a DoD contracting activity to use the model in a pilot procurement test. Modify and refine the model as necessary based on the results of this pilot test.

3. Perform a follow-on study of the Army Communications-Electronics Command best value procurement of third generation night vision devices at a $47M premium, to determine if the premium paid was cost effective.

4. Compose a glossary of Total Quality Management and other quality related terms, so that there will be standard definitions and clear terminology for both Government and industry to use when contracting for best value and quality.

APPENDIX A
MALCOLM BALDRIDGE NATIONAL QUALITY AWARD
EXAMINATION GUIDELINES- 1990

1.0 Leadership

1.1 Senior Executive Leadership
1.2 Quality Values
1.3 Management for Quality
1.4 Public Responsibility

2.0 Information and Analysis

2.1 Scope and Management of Quality Data and Information
2.2 Analysis of Quality Data and Information

3.0 Strategic Quality Planning

3.1 Strategic Quality Planning Process
3.2 Quality Leadership Indicators in Planning
3.3 Quality Priorities

4.0 Human Resource Utilization

4.1 Human Resource Management
4.2 Employee Involvement
4.3 Quality Education and Training
4.4 Employee Recognition and Performance Measurement
4.5 Employee Well-Being and Morale

5.0 Quality Assurance of Products and Services

5.1 Design and Introduction of Quality Products and Services
5.2 Process and Quality Control
5.3 Continuous Improvement of Processes, Products and Services
5.4 Quality Assessment
5.5 Documentation
5.6 Quality Assurance, Quality Assessment and Quality Improvement of Support Services and Business Processes
5.7 Quality Assurance, Quality Assessment and Quality Improvement of Supplies

6.0 Quality Results

6.1 Quality of Products and Services
6.2 Comparison of Quality Results
6.3 Business Process, Operational and Support Service Quality Improvement
6.4 Supplier Quality Improvement

7.0 Customer Satisfaction

7.1 Knowledge of Customer Requirements and Expectations
7.2 Customer Realtionship Management
7.3 Customer Service Standards
7.4 Commitment to Customers
7.5 Complaint Rsolution for Quality Improvement
7.6 Customer Satisfaction Determination
7.7 Customer Satisfaction Results
7.8 Customer Satisfaction Comparison

APPENDIX B
EXCERPT FROM THE DoD/JOINT SERVICE/AGENCY PAT: (DRAFT) GUIDE TO INTEGRATING TOTAL QUALITY MANAGEMENT INTO SOURCE SELECTION

iii. Process for Incorporating Total Quality Management in Source Selection

A. Total Quality Management in the Acquisition Plan (AP)-The AP should discuss the approach suggested in this guide to incorporate a performance risk evaluation (using Total Quality Management and past performance) as part of the source selection.

B. Total Quality Management in the Source Selection Plan (SSP)- The SSP is a key document for initiating and conducting source selection. It is prepared by the program office and approved by the SSA. The SSP should provide the details concerning the evaluation methodology to be used in assessing performance risk(refer to section V of this Guide for further information on conducting the assessment of performance risk). The SSP should also stipulate the specialized training requirements of the performance risk evaluators.

IV. Total Quality Management in the Request for Proposals (RFP)

This section provides sample language for use in the Executive Summary and Sections L and M of the RFP.

A. Executive Summary of the RFP:

1) The RFP Executive Summary should highlight the Government's intent to consider continuous process improvement and past performance as an overall performance risk assessment.

2) Sample RFP Executive Summary Language:

" The Government intends to consider each offeror's application of continuous process improvement principles and past performance. Specifically, a performance risk assessment will be conducted to assess the effectiveness of the

offeror's continuous process improvement efforts and past performance."

B. Section L- Instructions to Offerors

1) The following sample instructions to offerors are premised on the Malcolm Baldridge Quality Award Guidelines. They were developed by tailoring the Malcolm Baldridge criteria in scope and detail and by adding DoD-oriented language to make the criteria more pertinent for use in DoD source selection. This tailoring preserves the basic categories and depth of coverage needed to distinguish between the levels of maturity of continuous process improvement efforts of competing offerors and to specifically obtain past performance information. Source selection personnel should be encouraged to expand upon, reduce or otherwise tailor the language as appropriate to their specific solicitation needs. The result should request only information that will support the performance risk assessment, and should not require Total Quality Management plans as contract deliverables, data items, etc., to be developed or submitted.

2) The Sample RFP Section L Language:

" Volume XX- Information for Assessment of Performance Risk, Including Continuous Process Improvement Efforts and Past Performance

Note: The use of a separate volume is required to obtain proper visibility and to focus on continuous process improvement and past performance. This volume may be marked "Source Selection Sensitive" and will be treated accordingly by the Government.

1.0 General. The Government intends to consider each offeror's application of continuous process improvement principles and past performance. Specifically, a performance risk assessment will be conducted to assess the effectiveness of the offeror's continuous process improvement implementation efforts and past performance. However, offerors are cautioned that in conducting the performance risk assessment, the Government may use data provided by the offeror in its proposal and data obtained from other sources.

2.0 Specific Information and Data. The offeror shall provide the information below emphasizing documented, verifiable evidence of the effective

implementation of continuous process improvement efforts and past performance. Actions presently planned shall also be included. Information provided should be applicable to the facilities or location where work under the proposed contract will be performed. The offeror shall describe the application of continuous process improvement practices, tools and techniques, and shall submit a past performance record on relevant contracts. The offeror's proposal should address the following areas:

Leadership- Describe how the senior executives create and sustain a clear and visible quality value system along with a supporting continuous process improvement management system to guide all activities of the company.

Information and Analysis- Describe and demonstrate the scope, validity, and management of data and information that underlie the company's continuous process improvement management system. In particular, describe how the company uses data to support a prevention-based approach to quality.

Strategic Quality Planning- Describe the company's continuous process improvement priorities and plan to achieve them.

Human Resource Utilization- Describe the company's practices to develop and utilize the full potential of the work force and to maintain an environment conducive to full participation, continuous process improvement and personal and organizational growth. Summarize quantitative and qualitatively 1) accomplishments to date and recent trends in employee participation in continuous process improvement activity, 2) types of continuous process improvement education and training provided in each pertinent employment category, and 3) trends in recognizing employees for contributions to continuous process improvement.

Quality Assurance of Products and Services- Describe how products and services are continuously improved through optimization and improvement of processes. In the area of design and development, where applicable, the description may include information pertaining to the use of continuous process improvement techniques such as Quality Function Deployment, producibility engineering and

planning, design of experiments, DoD Directive 4245.7M - Transition from Development to Production, etc. Include a description of how the offeror flows the company's continuous process improvement focus down to subcontractor levels.

Results - Provide data that shows trends in: improvement of quality of products and services based on analysis of customer requirements, analysis of quality deficiency reports, cycle time reductions, Material Review Board actions, scrap and rework, etc., and the analysis of internal business operations, and improvement in the quality of supplies and services furnished by other companies. Provide evidence of the use of results to overcome and prevent the recurrence of problems. Demonstrate application of the offeror's continuous process improvement activities by briefly summarizing several projects that illustrate their breadth and effectiveness. The offeror should submit information on contracts considered relevant in demonstrating ability to perform on the proposed effort. This information may include data on efforts performed by other divisions, corporate management, critical subcontractors, or teaming subcontractors, if such resources will be brought to bear or significantly influence the performance of the proposed effort. For each current or past (within the prior three years) contract which is relevant (similar effort of for items of comparable complexity), the offeror should provide the following information:

a) Administrative Data
   - (i) Company/Division Name
   - (ii) Program Title
   - (iii) Contracting Agency
   - (iv) Contract Number and Award Date
   - (v) A Brief Description of the Contract Effort, Indicating Whether it Was Development and/or Production
   - (vi) Type of Contract
   - (vii) Period of Performance
   - (viii) Original Contract Dollar value and Current Dollar Value
   - (ix) Original and Current Schedules and Completion Dates
   - (x) Name, Address, and Telephone Number of Government Program Director/Manager, Administrative Contracting Officer, and PCO.

b) Specific Content- Offerors are required to explain aspects of the contracts that are deemed relevant to the proposed effort. Offerors are also requested to submit information on significant achievements or explain past problems they consider relevant to the proposed effort.

Customer Satisfaction- Describe the company's methods for determining customer satisfaction. Briefly summarize the company's customer satisfaction trends."

C. Section M - Evaluation Factors for Award

1) The language for Section M should be Covered in two Parts:

a) General Basis for Award - This section describes how the solicited proposals will be evaluated and rated.

b) Performance risk - This section describes how performance risk will be assessed.

2) Sample RFP Performance Risk Language:

The Government will also conduct a performance risk assessment based upon: 1) effectiveness of the offeror's continuous process improvements effort and the applicability of the offeror's use on continuous process improvement practices, tools, and techniques, and 2) the offeror's past performance record, demonstrated in terms of actual results. In assessing performance risk, the Government may use information and data as submitted by the offeror, as well as information and data obtained from other sources, to evaluate the areas listed above. Performance risk assessment relates to the offeror's probability of successfully accomplishing the proposed effort."

APPENDIX C
EVALUATION FORM

FACTOR:

SUBFACTOR: Leadership

SUBORDINATE SUBFACTOR: A (1) Senior Executive Leadership

Senior level management's active leadership in, personal involvement with, and company-wide visibility in developing and maintaining a favorable climate for quality values.

Rate the appropriateness, effectiveness and extent of executive level involvement Examples may include but are not limited to:
Documents/facts verifying the existence of--
- of a Senior Executive plan for incorporating the quality values into the leadership process of the company.
- a Senior Executive system for communication to and access with the company's personnel.Examples include:
    * Town Meetings
    * CEO Bulletins
    * CEO Memorandums
    * Company Magazines

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Leadership

SUBORDINATE SUBFACTOR: A (2) Management for Quality

Evaluate how the company integrates its quality values into day-to-day management of all units. Examples may include but are not limited to:

- Key strategies for involving all levels of management and supervision in the monitoring and promotion of quality, and the principal roles and responsibilities defined at each level.
- Key strategies to promote cooperation and synergism among managers and supervisors of all units at all levels. Examples include:
  * interunit teams
  * process action teams
- Types, frequency and content of company reviews of the status of quality plans and actions to assist units not performing up to potential.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Information and Analysis

SUBORDINATE SUBFACTOR: B (1) Scope and Management of Quality Data and Information.

Evaluate the adequacy of the company's management information system to support the planning, management and evaluation of qual-ity, and how data and information reliability, timeliness and access are assured. Examples may include but are not limited to:
Documents/facts verifying the existence of--
- Criteria for selection of specific items for inclusion in the qual-ity related data and infor-ation base.
- A valid and effective use of the data, including int-ernal operations and proc-esses, quality results, su-pplier quality, etc.
- Processes and technologies the company uses to ensure the validity consistency,standardization review,update and timely access to quality data throughout the company.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Information and Analysis

SUBORDINATE SUBFACTOR: B (2) Analysis of Quality Data and Information

Evaluate how data and information are systematically collected and analyzed to support the company's quality objectives in a timely and efficient manner. Examples may include but are not limited to:

Documents/facts verifying the existence of--

- Principal types of analysis performed such as determination of trends and projections of quality improvements that should result from changes in technology, evaluation of system performance, and assessment of product long-term performance.
- Plans made and steps taken to shorten the cycle of data gathering analysis, and access to improve support of company quality objectives.
- Analysis perfromed leads to changes in types of data collected, improved reliability of data, and improved analytical capabilities.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Strategic Quality Planning

SUBORDINATE SUBFACTOR: C (1) Strategic Quality Planning Process

Evaluate the company's strategic quality planning process for short term (1-2 years) and long term (3-5 years) to achieve and sustain leadership and customer satisfaction

Examples may include but are not limited to: Documents/facts verifying the existence of--

- Employees, suppliers and customers contributing to the planning process, including data collection and analysis.
- The company attempts to integrate short and long term priorities into the company's leadership objectives.
- There are mechanisms by which the company ensures that its suppliers meet or exceed its quality requirements.
- The company has attempted to perform a self-diagnosis or self assessment of its quality program such as through use of the Malcolm Baldridge National Quality Award application guideline as evaluation criteria.
- The planning process is continuously evaluated and improved.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Human Resource Utilization

SUBORDINATE SUBFACTOR: D (1) Employee Involvement

Evaluate how the company provides a means for all of its employees to effectively contribute to the company's quality objectives. Examples include but are not limited to: Documents/ facts verifying the existence of--

- Company encouragement of group participation to evaluate and assist in redesign of the company's systems and processes, examples may include
  - * Steering groups
  - * Improvement teams
  - * Problem-solving teams
  - * Quality circles
- Other avenues for employee participation, including suggestion systems, ombudsmen, or hotlines.
- The company attempts to enhance employee power to act (empowerment).
- The company utilizes surveys, questionnaires or other methods to collect information and to provide a baseline measurement of employee attitudes and values.
- The company provides prompt, constructive feedback on and rewards for employee suggestion, comments and criticisms.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Human Resource Utilization

SUBORDINATE SUBFACTOR: D (2) Quality Education and Training

Evaluate how the company provides quality related education and training for employees, and how it subsequently utilizes the knowledge and skills acquired in the process. Evaluate how the company measures human resource contributions so that management can make informed decisions about training, recognition and employee involvement. Examples may include but are not limited to:

Documents/facts verifying the existence of--

- Company rationale for deciding what education and training is needed for different categories of employees.
- The company provides on-the-job reinforcement of the knowledge and skills acquired in education and training.
- Indicators of effectiveness of the company's education and training activities and how the indicators are used to improve these activities.
- Company ties needs-based training with business plans.
- Company designs results/benefits measurement into the training process.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Human Resource Utilization

SUBORDINATE SUBFACTOR: D (3) Employee Recognition and Performance Measurement

Evaluate how the company's employee recognition and performance measurement process supports quality improvement.
Examples may include but are not limited to:
Documents/facts verifying the existence of--

- Company strategies for encouraging contributions to quality, including recognition of individuals or groups, and suppliers for exemplifying quality.
- The company evaluates the effectiveness of its recognition and performance measurement system including mechanisms to solicit employee feedback.
- The company provides prompt, constructive feedback on and rewards for employee suggestions, comments, criticisms.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Human Resource Utilization

SUBORDINATE SUBFACTOR: D (4) Employee Well-Being and Morale

Evaluate how the company safeguards the health and safety of employees, ensures their comfort and physical protection, and maintains a supportive work environment. Examples may include but are not limnited to: Documentation/facts verifying the existence of--

- The company integrates well being and morale factors such as health, safety, job satisfaction and ergonomics into quality improvement activities. Examples may include
  - * Wellness classes
  - * Special health events
  - * Health risk assessments for employees and their families
- The quality and effectiveness of the company's methods for analysis of underlying causes of accidents, work related health problems and job dissatisfaction, and the elimination of adverse conditions.
- Special services, facilities and opportunities the company makes available to support employees.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Quality Assurance of Products and Services

SUBORDINATE SUBFACTOR: E (1) Design and Introduction of Quality Products and Services

Evaluate the process by which new or improved products and services are designed and introduced to meet or exceed customer requirements, and how processes are designed to deliver according to the requirements. Examples may include but are not limited to:
Documentation/facts verifying the existence of:

- Effective mechanisms for conversion of customer needs and expectations into product and process requirements and/or service quality standards.
- The company's methods for assuring that quality is designed-in during research, development, and validation stages, including review of designs for feasibility, and assessment of key factors in production and use.
- The company has a detailed control plan including provisions for the selection and setting of key products characteristics to be controlled and how they are controlled.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Quality Assurance of Products and Services

SUBORDINATE SUBFACTOR: E (2) Process and Quality Control

Evaluate the processes by which the company's products or services are controlled, and how the company assures that products or services meet design plans, specifications or SOW's. Examples may include but are not limited to: Documentation/facts verifying the existence of--

- Effective approaches the company uses to ensure that processes which produce products or services are adequately controlled to ensure quality, timely delivery within cost objectives.
- Effective approaches the company takes to ensure that products and services meet design plans, specs or SOW's.
- Effective approaches the company uses to identify root causes of process upsets (problems).
- Effective approaches to the design of the measures to correct process upsets, and methods of verifying that the measures produce the predicted results, and are effectively utilized in all appropriate units of the company.
- Effective approaches the company uses to utilize the information obtained from process and quality control for problem prevention and quality improvement.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.
2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Quality Assurance of Products and Services

SUBORDINATE SUBFACTOR: E (3) Continuous Process Improvement of Processes, Products and Services

Evaluate how the company's products/services are continuously improved through optimization and improvement processes. Examples may include but are not limited to:
Documentation/facts verifying the existence of--

- The company utilizes methods for the continuous improvement of quality in products/service using any of the following techniques (or any others which the offeror presents)
  * Cause and Effect Analysis
  * Pareto Charts
  * Statistical Process Control (SPC)
  * Histograms
  * Checksheets
  * Input/Output Analysis
  * Scatter Diagrams
  * Concurrent Engineering
  * Control Charts
  * Work Flow Analysis
  * Shewart Cycles
- The company has a method of integrating continuous process improvement into daily operations and routine process and quality control by all units of the company.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Quality Assurance of Products and Services

SUBORDINATE SUBFACTOR: E (4) Quality Assurance, Quality Assessment and Quality Improvement of Suppliers

Evaluate how the quality of materials, components and services furnished by other businesses is assured and continuously improved. Examples may include but are not limited to:
Documentation/facts verifying the existence of--

- Effective processes used to ensure that the company quality requirements are being met by suppliers, through such means as: audits, inspections, certification and testing, partnerships, training, contract incentives and recognition.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Customer Satisfaction

SUBORDINATE SUBFACTOR: F (1) Knowledge of Customer Requirements and Expectations

Evaluate how the company effectively manages its relationships with customers, broken out by commercial/Government categories, and how it ensures continuous improvements of customer relationship management. Examples may include but are not limited to:
Documentation/facts supporting the existence of--

- Effective means for ensuring easy access for customers to comment, seek assistance or to complain.
- Company follow-ups with customers on comments, complaints, requests for assistance.
- Mechanisms in place to empower customer-contact employees to take extraordinary measures to accommodate the customer when necessary.
- The use of technology and logistics (infrastructure) support to enable customer-contact employees to provide effective and timely customer service.
- Company analysis of complaint information, gains and losses of customers, and lost orders to assess costs and market consequences for policy review.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

EVALUATION FORM

FACTOR:

SUBFACTOR: Customer Satisfaction

SUBORDINATE SUBFACTOR: F (2) Customer Service Standards

Evaluate the company's standards governing the direct contact between employees and customers, and how these standards are set and modified. Examples may include but are not limited to:
Documentation/facts supporting the existence of--

- The existence of product and service guarantees and product warranties, and other types of commitments the company makes to promote trust and confidence in its products and services. Evaluate the comprehensiveness, conditional qualifications, understandability and credibility.
- How improvements in the company's products/services over the past 3 years have been translated into change in warranties, guarantee's other commitments.

Maximum Points	Assessment %	Score

Scoring Justification:

1. Strong Points.

2. Weak Points.

3. Overall Rationale for Assessment %.

APPENDIX D
EVALUATION FORM
(EXAMPLE)
Basic Proposal Evaluation
XYZ Corporation Proposal

FACTOR: Continuous Process Control

SUBFACTOR: Quality Assurance of Products and Services

SUBORDINATE SUBFACTOR: E (3) Continuous Process Improvement of processes, Products and Services

Evaluate how the company's products/services are continuously improved through optimization and improvement processes. Examples:

- Evidence that the company utilizes methods for the coninuous improvement of quality in products/service using any of the following techniques:
  * Cause and Effect Analysis
  * Pareto Charts
  * Statistical Process Control (SPC)
  * Histograms
  * Checksheets
  * Input/Output Analysis
  * Scatter Diagrams
  * Concurrent Engineering
  * Control Charts
  * Work Flow Analysis
  * Shewart Cycles
- Evidence that the company has a method of integrating continuous process improvement into daily operations and routine process and quality control by all units of the company.

Maximum Points	Assessment %	Score
100	90%	90

Scoring Justification:

1. **Strong Points**. XYZ Corporation's proposal is very detailed and specific with regard to its successful use of SPC to control the widget production process. Its description of the Measurement Error study,Control Charting,Cpk Capability Index, Taguchi Loss Function control processes, and SPC applications to assemblies, subassem-blies and components show positive trends in continuous process improvements as evidenced by a 4% drop in scrap rate last year.
2. **Weak Points**. Not all of XYZ Corporation's divisions, affiliates and suppliers have this successful SPC and continuous process improvement program in place, or they are in place, but not as mature or successful as they are for the widget production process.
3. **Overall Rationale for Assessment %**: This is clearly a "superior" component of the subfactor, but not 100% due to the weak point.

EVALUATION FORM
(EXAMPLE)
Peformance Risk Assessment
XYZ Corporation

FACTOR: Continuous Process Control
SUBFACTOR: Quality Assurance of Products and Services
SUBORDINATE SUBFACTOR: E (3) Continuous Process Improvement of processes, Products and Services

Evaluate how the company's products/services are continuously improved through optimization and improvement processes. Examples: - Evidence that the company utilizes methods for the coninuous improvement of quality in products/service using any of the following techniques:
* Cause and Effect Analysis
* Pareto Charts
* Statistical Process Control (SPC)
* Histograms
* Checksheets
* Input/Output Analysis
* Scatter Diagrams
* Concurrent Engineering
* Control Charts
* Work Flow Analysis
* Shewart Cycles
- Evidence that the company has a method of integrating continuous process improvement into daily operations and routine process and quality control by all units of the company.

Maximum Points	Assessment %	Score
100	70%	70

Scoring Justification:

1. **Strong Points**: A review of PDREP database, preaward surveys and on-site plant visits performed in conjunction with two Navy production contracts within the past two years for a wodget, similar in most respects to a widget, revealed that XYZ's SPC and continuous improvement processes were adequate, with some weaknesses noted.
2. **Weak Points**: A review of the applicable data in the PDREP data base, preaward surveys and results of on-site plant visits reveals notable deficiencies in XYZ Corporation's SPC procedures, espec-ally with regard to the machined parts provided by a supplier, and in XYZ's manufacture of Vacuum Tube Envelopes and microchannel plates. Further, it was determined that XYZ was not making any significant effort to incentivize its supplier to use SPC in its process, nor was it making an effort to locate a better supplier.
3. **Overall rationale for Assessment %**: In view of how critical the machined parts, Vacuum tube envelopes and microchannel plates are in the proper functioning of widgets, and how little progress XYZ has made to correct, the risk in this area is high-moderate.

APPENDIX E

Evaluator_____
Date:_____
RFP:_____

CONSOLIDATED TALLY SHEET
(EXAMPLE)
Basic Proposal Evaluation

Factors/Subfactors	Max Points	Offerors 1	2	3	4
Leadership and Personnel Management					
A. Leadership					
(1) Senior Executive Leadership	20	18			
(2) Management For Quality	30	27			
B. Information and Analysis					
(1) Scope and Management of Data	20	18			
(2) Analysis of Quality Data	30	27			
C. Strategic Quality Planning					
(1) Strategic Quality Planning Process	100	90			
D. Human Resource Utilization					
(1) Employee Involvement	70	63			
(2) Quality Education and Training	70	63			
(3) Employee Recognition and Performance Measurement	60	54			
Factor Totals	400	360			
Continuous Process Improvement					
E. Quality Assurance of Products and Services					
(1) Design and Introduction of Quality Products/Services	100	90			
(2) Process and Quality Control	100	90			
(3) Continuous Process Improvement of Processes, Products/Services	100	90			
(4) Quality Assurance,Quality Assessments and Quality Improve-Suppliers	100	90			
F. Customer Satisfaction					
(1) Knowledge of Customer Requirements and Expectations	100	90			
(2) Customer Service Standards	100	90			
Factor Totals	600	540			

Evaluator_____
Date:_____
(EXAMPLE) RFP:_____

Consolidated Tally Sheet
Performance Risk Assessment

Factors/Subfactors	Max Points	Offerors 1	2	3	4
Leadership and Personnel Management					
A. Leadership					
(1) Senior Executive Leadership	20	14			
(2) Management For Quality	30	21			
B. Information and Analysis					
(1) Scope and Management of Data	20	14			
(2) Analysis of Quality Data	30	21			
C. Strategic Quality Planning					
(1) Strategic Quality Planning Process	100	70			
D. Human Resource Utilization					
(1) Employee Involvement	70	19			
(2) Quality Education and Training	70	49			
(3) Employee Recognition and Performance Measurement	60	42			
Factor Totals	400	250			
Continuous Process Improvement					
E. Quality Assurance of Products and Services					
(1)Design and Introduction of Quality Products/Services	100	70			
(2) Process and Quality Control	100	70			
(3) Continuous Process Improvement of Processes, Products/Services	100	70			
(4) Quality Assurance,Quality Assessments and Quality Improve-Suppliers	100	70			
F. Customer Satisfaction					
(1) Knowledge of Customer Requirements and Expectations	100	70			
(2) Customer Service Standards	100	70			
Factor Totals	600	420			

AN EXAMPLE OF SSEB CONVERSION OF SCORES TO ADJECTIVAL RATINGS/RISKS:

A. Example Conversion Scales

Basic Proposal Evaluation Scale:			**PRA Risk Level Scale:**	
Factor:	Point Range:	Rating:	Point Range:	Risk Level:
Continuous Process Improvement	540-600	Superior	510-600	Low
	420-539	Acceptable	420-509	Moderate
	360-419	Marginal	0-419	High
	0-359	Unsat		
Leadership and Personnel Management	360-400	Superior	340-400	Low
	280-359	Acceptable	280-339	Moderate
	240-279	Marginal	0-279	High
	0-239	Unsat		

B. Example Conversion of XYZ Corporation's Scores by SSEB:

Factor:	Points:	Rating:	Points:	Risk Level:
CPI	540	Superior	420	Moderate
LPM	360	Superior	250	High

C. An example determination of Overall Factor Rating by SSEB:

Factor:	Basic Evaluation Rating:	Performance Risk Assessment:	Overall Rating:
CPI	Superior	Moderate	Acceptable
LPM	Superior	High	Marginal

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